

Outsourcing of DoD Commercial Activities

*Impacts on
Civil Service Employees*

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PREFACE

Responding to recommendations from the Commission on Roles and Missions of the Armed Forces, the Office of the Secretary of Defense (OSD) is investigating opportunities to increase the scope and pace of outsourcing of commercial activities. Outsourcing can reduce the cost of commercial activities directly, by taking advantage of efficiencies found in the competitive private sector, or indirectly, by inducing activities that remain in-house to operate more efficiently. Either way, civil service employees are likely to be displaced, presenting Department of Defense (DoD) managers of the civil service workforce with a range of issues. Accordingly, OSD managers of civil service employees have an interest in predicting and understanding the effects of this intensified examination of DoD outsourcing opportunities. At the request of the Deputy Assistant Secretary of Defense for Civilian Personnel Policy, RAND undertook a study to examine these effects.

Findings of the study should be of interest to OSD, service, and defense agency personnel managers, especially those responsible for programs to assist displaced workers and those who have an interest in the cost and productivity of workforces. Managers of outsourcing and cost-comparison processes should also have an interest in some of the findings.

This report was prepared under the sponsorship of the Office of the Assistant Secretary of Defense for Force Management Policy. It was prepared within the Forces and Resources Policy Center of RAND's

National Defense Research Institute, a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, and the defense agencies.

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SUMMARY

INTRODUCTION

Outsourcing of commercial activities inside of the Department of Defense (DoD) occurs within a well-defined policy framework. This framework creates a predisposition toward outsourcing but also imposes an evolving set of exclusions and restrictions. Within this framework, DoD outsourcing has occurred on a relatively modest scale. However, the DoD has recently given outsourcing renewed attention, and momentum is building for a potentially significant expansion of outsourcing. If that expansion occurs, DoD civilian personnel managers will benefit from having a greater understanding of the factors that influence the number of job losses and level changes—*displacements*—that occur as a result of outsourcing.

The fundamental premise of federal policy on the performance of commercial activities, articulated in the U.S. Office of Management and Budget (OMB) Circular No. A-76, is that “the Government should not compete with its citizens” (1983, p. 1). The policy stipulates that, where feasible, costs of private-sector and in-house performance of commercial activities should be compared to determine who will do the work.¹ A *Revised Supplemental Handbook* (OMB, 1996) for implementing this policy provides detailed guidance and procedures

¹The circular defines a *commercial activity* to be an in-house function that provides a product or service that could be obtained from a commercial source. *Inherently governmental* functions are those that must be performed by government entities because they involve discretion in applying authority or a value judgment in making decisions for the government (OMB, 1983, p. 2).

for cost-comparison studies to determine whether recurring commercial activities should be operated under contract with commercial sources, operated in-house using government facilities and personnel, or operated through interservice support agreements.

If the scale of outsourcing increases, DoD civilian personnel managers will face two challenges: to ensure that studies account as fully and as accurately as possible for the personnel-related costs of all options; and to anticipate the displacements caused by an increased pace of outsourcing studies early enough to resize programs for managing and assisting displaced workers.

To assist DoD civilian personnel managers in addressing these concerns, we focused on three fundamental questions:

- What executive and legislative policies have influenced outsourcing in DoD and how are they changing?
- How are these policies applied in practice?
- What were the impacts on civil service employees of past DoD outsourcing studies?

To answer the first question, we examined U.S. Office of Management and Budget and DoD policy directives and the provisions of past and pending DoD authorization and appropriation acts. We also interviewed personnel in the Office of the Secretary of Defense (OSD) and service focal points for outsourcing cost-comparison studies to gain their perspectives on how the outsourcing environment is changing. To answer the second question, we conducted case studies of several recently completed or ongoing cost-comparison studies. In seeking answers to the third question, we analyzed the results of past cost-comparison studies to identify the factors contributing to the incidence and magnitude of the displacement of civil service employees. We used data from DoD's Commercial Activities Management Information System (CAMIS) for a quantitative analysis.² For a qualitative analysis, we visited and

²CAMIS provides information on all completed and in-progress cost-comparison studies conducted within DoD under OMB Circular A-76. It provides information about the studied activity and about outcomes at various stages of the cost-comparison process. Services and defense agencies maintain the database and

interviewed managers and affected employees at the sites selected for our case studies. In addition, we developed a model describing how the cost-comparison process displaces employees and estimated the relationship between a variety of factors and those displacements. These estimates form the basis of a predictive model for anticipating the outcomes of an expected surge in cost-comparison studies.

EXECUTIVE POLICY AND LEGISLATION

Outsourcing of commercial activities by the federal government is influenced most strongly by OMB policy, which predisposes the government toward outsourcing those activities that are not "inherently governmental" (OMB, 1983, 1996). Other policy and legislation may either support or constrain this predisposition.

In reviewing the literature on government outsourcing, we found that applicable executive and legislative policy is influenced by five varying perspectives:

- Outsourcing, without elaborate public and private cost comparisons, should be supported on ideological grounds.
- Competition, including public-versus-private competition, is the key to the government's realizing greater efficiency through outsourcing.
- Market imperfections limit the scope of outsourcing solutions and create new prerequisites for effective management of government operations.
- Outsourcing is a threat to the interests of the government and its citizens. This perspective is rooted primarily in special interests.
- The treatment of government workers displaced through outsourcing is an important area of concern.

We find that executive policy tends to reflect the first two perspectives and, therefore, to favor outsourcing. Legislation tends to reflect

periodically submit updates to OSD. The governing directive is DODI 4100.33, *Commercial Activities Program Procedures* (DoD, 1985). The office of primary responsibility is the Deputy Assistant Secretary of Defense for Installations.

the third and fourth perspectives and, therefore, to place limits on the pace or scope of outsourcing. The fifth perspective is neutral with respect to outsourcing itself.

These perspectives are embedded in a number of overlapping and sometimes conflicting legislative and executive directives. Choosing between in-house and contract performance is governed by OMB Circular A-76, as well as by Title 10, United States Code (10 USC 2461–2471), by additional miscellaneous provisions and restrictions contained in annual national defense authorization and appropriation acts, and by DoD Directive 4100.15 and Instruction 4100.33. Treatment of displaced employees is governed by Title 5, Code of Federal Regulations (5 CFR). Contract administration is governed by Titles 40 and 41, USC.

The decision to outsource a federal activity is generally made in the context of a formal cost-comparison process prescribed by OMB. To begin this process, service or agency officials develop a performance work statement and solicit bids from private-sector contractors. Simultaneously, the in-house workforce has the opportunity to submit its own bid, referred to as the government's most efficient organization (MEO), which incorporates any identifiable streamlining or operating efficiencies. Costs of operating under the private-sector and in-house bids are compared to determine a winner. During the process and after an outsourcing decision is made, civilian personnel managers counsel potentially displaced employees, make arrangements for transferring them to other positions if possible, and provide due process for any necessary severances. Between 1978 and 1994, about 2,200 outsourcing studies were completed, resulting in 30,100 civil service employees being displaced: separated, retired, or transferred to positions at the same grade or a lower grade.

CASE-STUDY FINDINGS

In a series of case studies of five activities that have been recently outsourced or for which outsourcing was pending, we examined how these policies and processes are applied in practice and the outcomes of these policies for civil service personnel. Our major findings are as follows:

Impacts on Civil Service Employees

- Every installation was engaged in a practice called “stockpiling vacancies,” whereby vacant positions installation-wide are either left unfilled or are filled with temporary employees. If the function under study is outsourced, the temporary workers are separated and replaced with displaced permanent employees.
- Information on the displacement of civil service employees contained in the CAMIS database tends to understate the impact because it does not capture personnel shuffling that occurs before the announcement of the cost-comparison result or the secondary effects of outsourcing on personnel who work in other functional areas within the installation.
- Civil service workers are averse to leaving civil service and accepting employment with private-sector contractors. Reasons cited are nonportability of some federal retirement benefits, better civil service wages and benefits, and better job security.
- Civilian personnel officers are strongly committed to finding alternative employment for the permanent workers who are displaced by an outsourcing action. This placement goal takes precedence over the efficient use of the workforce. Efforts to place employees are focused at the base level, and programs available to assist employees in transferring to positions at other installations are used sparingly, if at all.
- Because the process of placing affected employees is labor-intensive, local civilian personnel offices can be overwhelmed by large reductions in force (RIFs). In addition to the sheer magnitude of the workload, civilian personnel offices face legal time constraints, such as required RIF notification lead times, that impede their ability to complete the RIF process to coincide with outsourcing implementation dates. As a result, displaced employees are often counseled inadequately or are given insufficient time to evaluate alternatives.

Cost-Comparison Studies

- At one installation, some studies were canceled (often because a legislatively imposed limit on the duration of cost-comparison

studies was reached) and were restarted with a new cost-comparison study number. Such practices may lead to an overstatement of the number of studies that are actually canceled.

- When government workers are demoted in the context of a RIF, they retain the pay associated with their current grade in their new position. The costs associated with this practice are not usually included in an evaluation of the costs of contracting or in calculations of the savings generated by the A-76 process. This failure implies a tendency to overstate the cost savings attributable to the outsourcing process.
- Contract costs commonly increase over the amount of the initial bid. In general, this occurs because the scope of work expands, either because the workload has increased or because the initial statement of work was inadequate. All installations noted problems stemming from a lack of training, qualifications, and experience on the part of people developing the performance work statement and the in-house bid.
- Contractors base their bids on detailed workload information, whereas the in-house bid is based on gross and indirect proxies for workload. Further, in-house activity managers generally have little or no experience in estimating the labor and other resources needed to operate their activity. As a result, MEOs tend to be insensitive to differences between existing workloads and those specified in performance work statements.
- The Service Contracts Act places a floor (at locally prevailing rates as determined by the Department of Labor [DoL]) on the wages contractors can pay service workers, as well as on the costs of benefits they provide. Because of competition, contractors almost always pay wages at this floor. DoL wage rates vary significantly from the Federal Wage System (FWS) wage for many occupations in the activities we examined, even though FWS wages are also based on local prevailing wages. This discrepancy places contractors and MEOs on an uneven labor-costs playing field.

Other Considerations

- The major source of productivity improvement in the conversion to contract in the cases we examined stems from multiskilling

and multitasking (employing workers with multiple occupational skills and expecting them to perform tasks that will cross traditional occupational boundaries). Multitasking also contributes to the contractors' ability to streamline overhead. Improved worker motivation and an ability to pay lower wages and benefits were also cited as reasons for productivity improvement.

- We observed no decline in the quality of service at the installations visited.
- Contract terms may offer commanders and managers a greater capacity to differentiate rewards based on performance than the terms of civil service employment. Thus, in addition to being generally less costly, outsourcing might come to be viewed by managers as a superior means of obtaining quality outcomes.

DISPLACEMENT OF CIVIL SERVICE EMPLOYEES

To model potential outsourcing-related displacement of civil service employees, we used data from DoD's CAMIS. The model estimates historical relationships between various characteristics of studied activities and employee displacements. It provided us with a better understanding of the cost-study process and allowed us to predict the outcomes of ongoing or future cost studies. In four stages, the model estimates completion rates for initiated studies, rates of outsourcing among completed studies, incidences of employee displacement when outsourcing occurs, and the size of the impacts.

Broadly, we found that 57 percent of all initiated studies are eventually completed. Of those, 48 percent result in outsourcing. Among outsourced activities, 80 percent have some type of personnel displacement. More specifically, 30 percent resulted in separation of permanent employees, 41 percent resulted in retirements, 34 percent resulted in transfers to lower-grade positions, and 73 percent resulted in lateral transfers.

Six factors were useful predictors of cost-comparison study outcomes and displacements: (1) *size* of the activity at the start of the cost comparison; (2) the *proportion of civilians* within the total manpower of the activity; (3) the bid *solicitation type* (negotiated or

sealed bid); (4) the *date* the study was initiated; (5) the *military service or defense agency* to which the activity belonged; and (6) the *function* of the activity.

These factors can sometimes have offsetting effects in different stages of the model. The size of the activity provides an example: The probability of completion of a study is lower for larger activities, but those activities for which studies are completed are more likely to be outsourced; if they are outsourced, the magnitude of the displacements will be greater. When the net effects of these factors are observed over all stages of the model, the expected impacts on civil service employees are greater for larger activities, for Air Force and Army activities, and for social service, equipment maintenance and repair, and real property maintenance functions. The expected impacts are smaller for Navy activities; multifunction, depot maintenance, and health services functions; negotiated bids; and studies initiated after 1988.

Conclusions and Recommendations

In the course of our research, we identified a number of initiatives that DoD or the services might pursue to improve the extent to which the cost-comparison process reflects the relative costs and benefits of in-house as opposed to contractor performance or to predict and mitigate eventual job displacements.

Some of our recommendations are likely to improve both efficiency of government operations and fairness to the government workforce. These include the following:

- Promoting shifts in classification, performance management, and other related personnel practices that will increase in-house labor productivity.
- Promoting and advocating more-flexible methods for assisting or resettling employees displaced because of outsourcing.
- Promoting centralized programs to assist local managers in preparing better performance work statements and in-house bids.

Other recommendations may require that trade-offs between efficiency and fairness objectives be reevaluated. These include the following:

- Advocating the itemization of certain employee-related transition costs that are currently not explicitly recognized in A-76 cost comparisons.
- Advocating changes in FWS procedures to more closely align civil service wage rates with levels paid by contractors.
- Examining the nonportability features of federal retirement systems.

Finally, we offer a recommendation that DoD use a model we have developed to forecast the displacements resulting from future outsourcing studies:

- Taking advantage of the multiyear length of most A-76 studies to predict and prepare for eventual displacements.

ACKNOWLEDGMENTS

A growing community of researchers within RAND and the Center for Naval Analyses (CNA)—too numerous to mention here—are interested in DoD outsourcing issues. We appreciate the opportunities we have had to exchange insights with them. We thank Sue Hosek for the perceptive guidance she provided as program director and co-principal investigator for the project under which this report was produced. Rachel Louie was most helpful in providing programming support for data analysis. Ellen Pint, a RAND colleague, and Carol Moore, of CNA, provided helpful reviews. RAND colleagues Edward Keating and Nancy Moore also provided useful comments on earlier versions of this report. Marian Branch carefully edited the final copy.

Dr. Larry Lacy, of DoD's Civilian Personnel Management Service, provided useful feedback on the research leading up to this report. Col John Horsfall of the Office of the Deputy Assistant Secretary of Defense for Installations was most helpful in giving us access to outsourcing data files and keeping us abreast of developments in the DoD A-76 program.

Points of contact for the A-76 program at each service's headquarters and at several major commands and local installations were valuable sources of information—particularly Jim Wakefield of the Army's Office of the Assistant Chief of Staff for Installation Management and Annie Andrews of the Air Force's Directorate of Manpower Organization and Quality, who were also instrumental in arranging the visits through which we developed the case studies in this report.

Those who generously assisted us at major command and local installation levels must remain anonymous: In the interest of ensuring confidentiality for our sources, we have not identified the activities examined in the case studies.

ACRONYMS

BRAC	base realignment and closure
CAIRS	Commercial Activities Inventory Report and Five-Year Review Schedule
CAMIS	Commercial Activities Management Information System
CBO	Congressional Budget Office
CFR	Code of Federal Regulations
CNA	Center for Naval Analyses
CONUS	continental United States
CORM	Commission on Roles and Missions of the Armed Forces
CPO	civilian personnel office
DeCA	Defense Commissary Agency
DLA	Defense Logistics Agency
DMA	Defense Mapping Agency
DMDC	Defense Manpower Data Center
DoD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DoL	Department of Labor
FTE	full-time equivalent
FWS	Federal Wage System
FY	fiscal year

GS	General Schedule
IPP	Interagency Placement Program
IPT	integrated process team
MEO	most efficient organization
OMB	U.S. Office of Management and Budget
OPM	U.S. Office of Personnel Management
OSD	Office of the Secretary of Defense
PATCO	professional, administrative, technical, clerical, and other
PCS	permanent change of station
PPP	Priority Placement Program
PWS	performance work statement
QAE	quality assurance evaluator
RIF	reduction in force
RPL	Reemployment Priority List
USC	United States Code
VERA	Voluntary Early Retirement Authority
VSIP	Voluntary Separation Incentive Payment
WG	Wage Grade
WL	Wage Leader
WS	Wage Supervisor

INTRODUCTION

BACKGROUND

Outsourcing of commercial activities inside of the Department of Defense (DoD) occurs within a well-defined policy framework. This framework creates a predisposition toward outsourcing but also imposes an evolving set of exclusions and restrictions. Within this framework, DoD outsourcing has occurred on a relatively modest scale. However, in 1995, DoD began to give outsourcing renewed attention, and momentum is building for a potentially significant expansion of outsourcing. If that expansion occurs, DoD civilian personnel managers will benefit from having a greater understanding of the factors that influence the number of job losses and level changes—*displacements*—that occur as a result of outsourcing.

Executive Policy and Legislation

The fundamental premise of federal policy on the performance of commercial activities, articulated in the U.S. Office of Management and Budget (OMB) Circular No. A-76, is that “the Government should not compete with its citizens” (1983, p. 1). The policy stipulates that, where feasible, costs of private-sector and in-house performance of commercial activities should be compared to determine who will do the work.¹ A *Revised Supplemental Handbook* (OMB, 1996) for

¹The circular defines a *commercial activity* to be an in-house function that provides a product or service that could be obtained from a commercial source. *Inherently governmental* functions are those that must be performed by government entities be-

implementing this policy provides detailed guidance and procedures for cost-comparison studies to determine whether recurring commercial activities should be operated under contract with commercial sources, operated in-house using government facilities and personnel, or operated through interservice support agreements.

As with any other government agency, DoD is bound by the policies and procedures prescribed by OMB. However, Circular A-76 provides several broad exceptions for cases involving national defense. Of 640,000 positions in DoD commercial activities performed in-house at the end of fiscal year 1994, 58 percent were excluded from outsourcing consideration for these national defense reasons (see Table 2.1, p. 20; see also DoD, 1995a).

Some aspects of outsourcing by DoD, the military services, and the defense agencies are also governed by legislation. In the past, much of the legislation that applied to outsourcing of defense activities tended to *shelter* in-house performance rather than *promote* the use of private-sector sources. More recently, some legislative provisions have tended to favor greater use of outsourcing—for example, by requiring or permitting several pilot programs to outsource specific functions.

Outsourcing Activity Within the DoD

In accordance with these policies, the military services and defense agencies have, over the past several decades, completed over 2,000 cost-comparison studies. Activity was heaviest in the early 1980s (200–400 studies completed per year). By the mid-1990s, the level of effort had declined to less than ten studies completed per year. This decline can be attributed, at least in part, to legislative restrictions (see Chapter Two). The number of civil service employees reportedly affected by these many past studies has been modest: Over the 16-year period for which data were available (1978–1994), about 30,100 employees were displaced; but among these, over half were transferred to other civil service positions (see Figure 2.2, p. 28; see also DoD 1995b).

cause they involve discretion in applying authority or a value judgment in making decisions for the government (OMB, 1983, p. 2).

Stimulus from the Commission on Roles and Missions

The Commission on Roles and Missions of the Armed Forces (CORM), an ad hoc study group formed in accordance with Section 954 of the National Defense Authorization Act for Fiscal Year (FY) 1994, recommended a reversal of recent declines in outsourcing activity. The commission noted in its May 1995 report that, notwithstanding policies favoring outsourcing, DoD continues to employ at least 250,000 civil service personnel in commercial activities.² Citing typical cost savings of 20 percent when "meaningful competition" is introduced into the selection of sources for performance of these activities (p. 3-2), the CORM advocated withdrawal of Circular A-76 and repeal or amendment of various legislative restrictions (pp. 3-5 through 3-6).

Shortly after the CORM's report was issued, its chairman, John P. White, was appointed Deputy Secretary of Defense. In that capacity, he initiated a comprehensive review to identify and act on additional outsourcing opportunities within DoD (DoD, 1996, p. 4). Outsourcing was seen as a means of freeing up operations and maintenance funds to help meet growing modernization and readiness needs (DoD, 1996, p. 3). An integrated process team (IPT) for privatization was formed, headed by the Deputy Assistant Secretary of Defense for Economic Security. The IPT formed seven working groups to study each of the outsourcing recommendations made by the commission, two working groups to examine cross-cutting issues (the A-76 process and personnel issues), and a Defense Science Board working group to provide an independent perspective. If the initiatives examined by the IPT and its working groups are pursued by the services and the defense agencies, the pace of outsourcing in DoD will increase significantly.

Concerns of DoD Civilian Personnel Managers

If the scale of outsourcing *does* increase, managers of DoD civilian personnel will face two important challenges.

²The FY 94 CAIRS file showed 336,890 civil service positions in DoD commercial activities, of which 195,504 are in activities not excluded from outsourcing for national defense reasons. See Table 2.1, p. 20, and DoD, 1995a.

First, they will want to ensure that studies account as fully and as accurately as possible for the civil service personnel costs of all options, including the costs of satisfying due-process rights and providing equitable transition benefits for displaced workers. As stewards of government resources, they want costs and benefits to be reflected accurately so that options representing the highest value, net of costs, are unerringly chosen. Additionally, as advocates for the civil service workforce, they want to ensure that the interests of civil servants in retaining in-house performance are not adversely affected by incomplete or inaccurate cost comparisons.

Second, they will want to anticipate the displacements caused by an increased pace of outsourcing studies early enough to resize programs for managing and assisting displaced workers.

OBJECTIVES AND APPROACH

To assist DoD civilian personnel managers in addressing these concerns, we focused on three fundamental questions:

- What executive and legislative policies have influenced outsourcing in DoD and how are they changing?
- How are these policies applied in practice?
- What were the impacts of past DoD outsourcing studies on civil service employees?

To answer the first question, we examined OMB and DoD policy directives and the provisions of past and pending DoD authorization and appropriation acts. We also interviewed personnel in the Office of the Secretary of Defense (OSD) and service focal points for cost-comparison studies on outsourcing to gain their perspectives on how the outsourcing environment is changing.

To answer the second question, we conducted case studies of several recently completed or ongoing cost-comparison studies. As an important special focus within this broader question, we looked at the treatment of civil service personnel costs to see if they are sufficiently accounted for in cost-comparison studies. We also examined the outcomes and effectiveness of civilian personnel office (CPO) strategies for the disposition of displaced employees.

In seeking answers to the third question, we analyzed the incidence and magnitude of the results of past cost-comparison studies on civil service employees to identify contributing factors. In the quantitative part of the analysis, we used a cost-comparison database compiled by the services and defense agencies according to DoD specifications; in the qualitative part of the analysis, we visited the sites selected for our case studies and interviewed managers and affected employees at those sites. We also developed a model describing the displacement of civil service personnel as a result of the cost-comparison process and estimated the relationship between a variety of factors and those outcomes. These estimates form the basis for a predictive model that can be used to assist OSD in gauging the displacements that would follow an expected surge in cost-comparison studies. After the services have identified those activities to be included in this new round of studies, the model can be put to use.

SCOPE

In our legislative and executive policy review, we focus on government-wide and DoD policies, rules, and regulations, and attempt to summarize the overall policy context in which outsourcing occurs. We did not analyze service-specific policies. We tried to be comprehensive. However, given the influences of various political actors during the many stages of the cost-comparison process, it is possible that we overlooked some factors.

In contrast to the policy review and data analyses (see below), which are designed to be comprehensive, our case studies are more limited in scope. We originally intended to visit installations in each service at which an A-76 decision had been rendered in 1995 and 1996. We targeted such installations to increase the likelihood that people currently working there would be able to make before-and-after comparisons on issues of service quality and effectiveness, and would have some first-hand knowledge of the cost comparison and its effect on civil service employees. Because the data available to us in CAMIS included only studies completed or in progress as of December 1994, we contacted the A-76 representatives in each DoD service and asked them to provide us with a list of studies that had been completed in 1995 and 1996.

Investigation revealed that Army, Navy, and Marine A-76 activity came to a standstill during a congressional moratorium on A-76 contract conversions that was in effect from October 1992 through March 1994. (See Chapter Two for a more detailed discussion.) Because of the moratorium, there had been, as of July 1996, no A-76 completions in the past two years in either the Navy or the Marines, and only six completions in the Army. The Air Force was more active, with 13 completions in the past two years. Given the small sample from which we had to choose and in order to examine the widest variety of cases affecting the largest number of employees, we selected cases for study on the basis of activity size, functional area, and service—the Army and the Air Force.

Because of these selection problems, the results of the case-study analysis should be interpreted with caution. The most serious issue is that the sites we visited were somewhat unique precisely because they proceeded with the cost-comparison studies despite the moratorium. It is thus likely that the installations we visited have a more positive attitude toward outsourcing and a stronger infrastructure to support the cost-study process. A second limitation stems from the fact that we visited installations in only two services, the Army and the Air Force. The Navy, Marines, and other DoD agencies may have special features that influence the outsourcing process in their organizations. In addition, because of the major downsizing taking place in the Department of Defense at this time, many of the installations we visited were undergoing other types of restructuring activities that might affect the personnel environment.

Our data analysis is based on the CAMIS and CAIRS databases.³ These databases provide the only comprehensive, available, and reasonably accessible compilations of information about commercial activities and outsourcing studies in DoD. However, in cross-referencing our case-study findings with CAMIS data, we found evidence that some reported costs and employee outcomes are inaccurate or incomplete. In particular, the case-study evidence suggests that employee displacements reported in the CAMIS database may be undercounted. This potential bias is particularly

³As with CAMIS, CAIRS is prescribed by DODI 4100.33. It lists all in-house commercial activities, provides a reason for performing the activity in-house, and, if the activity will be subjected to a cost-comparison study, indicates a date for beginning it.

severe for activities that remain in-house: Because of ambiguities in DoD reporting requirements, some services do not require personnel outcomes to be reported when activities remain in-house, even if the in-house organization was made more efficient by reducing the number of employees. Unfortunately, our case studies were too few to permit us to quantify biases in the data.

Using the CAMIS database, we were able to model outcomes at several stages of the cost-comparison process. Specifically, we explain some of the variance in the probabilities that approved studies would be completed, that completed studies would result in outsourcing, that outsourcing would displace civil service personnel, and the magnitude of those displacements. We would like to have extended this analysis to an earlier stage—the selection of in-house activities for cost-comparison studies—but could not obtain suitable data to do so. CAIRS identifies in-house commercial activities. Organizational and activity identifiers found in CAIRS are not entirely consistent with those found in CAMIS records. We were thus unable to combine the data to determine the *rates* at which activities are selected for cost-comparison studies.

ORGANIZATION OF THE REPORT

In Chapter Two, we review executive and legislative policy related to outsourcing in the Department of Defense. In Chapter Three, we present results from the site visits to Army and Air Force installations, relating those observations to the policy context described in Chapter Two. In Chapter Four, which is intended primarily for analysts, we develop models describing the outsourcing process and how it displaces civil service employees. We also estimate the relationship between the magnitude of the displacements and a variety of features of the cost study and the activity under study. In Appendix A, we describe the methodology used in the site visits. In Appendix B, we detail how the models were estimated; in Appendix C, we present the models' equations in a format that allows analysts to use them to predict the effects of new or ongoing studies. In Appendix D, we provide additional information regarding characteristics of displaced employees, derived from data in DoD civilian personnel inventory and transaction files.

STATUTES, REGULATIONS, AND EXECUTIVE POLICIES

INTRODUCTION

Outsourcing of DoD activities is governed by several overlapping and sometimes conflicting legislative and executive directives. Choosing between in-house and contract performance is governed by Title 10, United States Code (10 USC 2461–2471); additional miscellaneous provisions and restrictions contained in annual national defense authorization and appropriation acts; OMB Circular A-76 (OMB, 1983); DoD Directive 4100.15 (DoD, 1989); and DoD Instruction 4100.33 (DoD, 1985). Treatment of displaced employees is governed by Title 5, Code of Federal Regulations (5 CFR). Contract administration is governed by Titles 40 and 41, USC.

These statutes, regulations, and executive policies strongly influence the way in which outsourcing decisions are made and significantly condition the effect these decisions have on the civil service workforce. Gaining an understanding of this material prepared us to interpret what we observed empirically in our case studies. It also helped us to frame the policy issues of our research.

In this chapter, we outline the major provisions of law and policy related to outsourcing and their implications for civil service employees. We do not fully examine acquisition policy, because changes in the civil service workforce are related to the outsourcing decision itself: Once the decision is made, acquisition policies play a lesser role in determining workforce displacements. In this study, we focus on outsourcing policies specifically and examine broader acquisition policies only when they relate directly to the civil service workforce,

such as requirements for contract provisions stipulating hiring preferences for displaced workers.

IMPETUS AND COUNTER-IMPETUS FOR OUTSOURCING

Executive policy and legislation are generally predisposed to outsourcing commercial activities. They also contain many restraints and exclusions, some of which seem to have rational underpinnings and some of which seem intended simply to raise impediments. Before outlining the policies themselves, we briefly summarize here a few broad ideological and practical considerations that underlie some of the conflicting elements of law and policy.

During the Reagan administration, executive policy favoring privatization of government functions was shaped by the President's "visceral assessment that the domestic side of government is too big and too encompassing" (Bozeman, 1988, p. 673). That ideology finds voice in OMB Circular A-76 (OMB, 1983, p. 1):

In the process of governing, the Government should not compete with its citizens. The competitive enterprise system, characterized by individual freedom and initiative, is the primary source of national economic strength. In recognition of this principle, it has been and continues to be the general policy of the Government to rely on commercial sources to supply the products and services the Government needs.

The CORM echoed this perspective (1995, p.3-3):

We recommend that the government in general, and the Department of Defense in particular, return to the basic principle that the government should not compete with its citizens. To this end, essentially all DoD "commercial activities" should be outsourced, and all new needs should be channeled to the private sector from the beginning.

The CORM placed such faith in the private sector that it advocated elimination of the requirement for cost-comparison studies as being "inconsistent with the basic policy preference for private enterprise. It stifles initiative and hamstring efforts to streamline operations" (1995, p. 3-5). This faith is buoyed by evidence that outsourcing gen-

erally reduces the cost of government operations. A Congressional Budget Office (CBO) review of commercial-type government activity concluded that outsourcing could save about 35 percent of what it costs to perform the activities in-house (1987, pp. 17–18). OMB reported average savings of 30 percent from original government costs: 20 percent savings for in-house government “wins” in cost-comparison competitions and 35 percent for private-sector “wins” (1988, p. 4). The Center for Naval Analyses (CNA) has estimated that A-76 cost comparisons conducted by DoD between 1978 and 1994 have yielded savings of 31 percent (Marcus, 1993).

Although greater savings were realized when activities were contracted out, savings were still realized when the activities remained in-house. Several audit reports have cautioned, however, that studies such as these rely on projected rather than actual costs and that subsequent cost adjustments tend to significantly reduce actual savings (U.S. Army Audit Agency, 1989; GAO, 1990).

The private sector has cost advantages that can be attributed to two phenomena: more-efficient use of labor and economies of scale (Donahue, 1989). Labor efficiencies arise because private-sector managers tend to have greater flexibility in managing their labor forces, a richer array of incentives and penalties, tighter accountability, and a greater propensity to substitute capital for labor. Scale economies arise when a single large contractor performs the same function at multiple sites. A third consideration, applicable to outsourcing by both public- and private-sector organizations, relates to internal equity considerations. Abraham and Taylor (1996) find evidence that firms who pay core workers well have difficulty paying only market wages to non-core workers.

Competition is an essential element that enables the government to realize the cost savings available through outsourcing. Osborne and Gaebler stress that the key to the advantages offered by outsourcing is not private as opposed to public performance but, rather, competition versus monopoly (1993, p. 76). Linowes, summarizing certain findings of the 1987 President's Commission on Privatization, similarly stresses the importance of competitive market conditions (1988, p. 244):

Contracting is likely to be most successful where the terms and measurements of service delivery are clear and easily defined, where at least several firms have the capacity to perform the contract, where the contractor does not have to make large new capital expenditures, and where the contract can be subject to renewal and renegotiation regularly.

Kettl (1993, pp. 31–35), however, sees problems in contracting arising from market imperfections that the advocates of privatization are too often willing to overlook. Imperfections on the supply side include the familiar market-failure problems of monopoly, oligopoly, and externalities. Imperfections on the demand side include insufficient definition of the product, lack of information about the product, and “internalities,” such as bureaucratic politics. He argues (pp. vii–viii) that

public reliance on private markets is far more complex than it appears on the surface. In these relationships, the government inevitably finds itself sharing power, which requires it to fundamentally rethink not only how it manages but how it governs. . . . Government must become a *smart buyer*, able to define what it wants to buy, to know how to get it, and to be able to recognize and judge what it has bought.

The American Federation of State, County, and Municipal Employees, speaking on behalf of labor, takes an uncompromisingly negative point of view (Lampkin, 1987, p. 45):

Privatization . . . doesn't work. . . . It leads to consequences that U.S. citizens really don't want. It leads to higher costs, lower quality, the reduced responsiveness of government, the reduced accountability of government to its citizens. It adds a middleman. It provides an opportunity for corruption. It has an adverse impact on the community, on women, on minorities, on wage rates. It has an adverse impact even on health and safety issues, the health and safety of workers and also the community.

Becker (1989) found evidence that legislative tolerance for privatization of government operations is low in areas in which public-employee unions are active.

Finally, both advocates and critics of outsourcing recognize that the displacement of government workers is an issue. The 1987 President's Commission on Privatization recommended that the federal workforce be assured that normally any staff reduction will be achieved through attrition and that adequate safeguards against employee displacement be maintained (Linowes, 1988, pp. 140–142). DoD has taken a more realistic view, noting that dislocation of employees is inevitable and that DoD "is committed to making the transition as humane as possible" (1996, p. 12). In addition to smoothing the transition of displaced workers to other employment, government agencies generally have an obligation under due-process doctrine to provide fair procedures for determining *who* will be displaced. Additionally, as Kettl (1991) notes, the right of public employees to appeal A-76 cost-comparison outcomes is a due-process issue.

In summary, we find five varying perspectives in this material:

- Outsourcing, without elaborate public/private cost comparisons, should be supported on ideological grounds.
- Competition, including public/private competition, is the key to the government's realizing greater efficiency through outsourcing.
- Market imperfections limit the scope of outsourcing solutions and create new prerequisites for effective management of government operations.
- Outsourcing is a threat to government and citizen interests. This perspective is rooted in special interests.
- Treatment of government workers displaced through outsourcing is an important area of concern.

Executive policy tends to reflect the first two perspectives and, therefore, to favor outsourcing. Legislation, on the other hand, tends to reflect the third and fourth perspectives and, therefore, to place limits on the pace or scope of outsourcing. The fifth perspective is neutral with respect to outsourcing itself.

EXECUTIVE POLICY

Executive policy on outsourcing of commercial activities, which applies broadly to all federal agencies, is contained in OMB Circular A-76 (1983) and its *Revised Supplemental Handbook* (1996). The basic policy position put forward in Circular A-76 is that the federal government should not provide commercial services or make commercial products that can be produced more efficiently in the private sector. Circular A-76 and the *Revised Supplemental Handbook* require government agencies to identify and review all commercial activities performed by the government and to contract for those activities that can be provided more efficiently by the private sector.

Identification of Commercial Activities

In Circular A-76, a distinction is made between “governmental functions” and “commercial activities.” *Governmental functions* are activities that require exercising discretion in applying government authority or using value judgment in making decisions for the government. These activities relate to the act of governing (e.g., the regulation of space, natural resources, and industry, and the management of federal employees) or to the enactment of monetary transactions (tax collection and revenue disbursements). While management and direction of the armed services, activities performed exclusively by deployable military personnel, and combat support services are identified as “governmental functions” in Circular A-76, not all defense-related activities are considered inherently governmental functions. For the purposes of Circular A-76, “[a] commercial activity is one which is operated by a federal executive agency and which provides a product or service which could be obtained from a commercial source. A commercial activity is not a governmental function.” Attachment A to Circular A-76 includes examples of commercial activities, which range from food services to systems engineering.

Note that these definitions, which apply to the entire federal government, can lead to confusion when applied within DoD. Activities integral to the national defense, as long as they are not “inherently governmental” as described above, are identified as “commercial ac-

tivities,” even in cases where it is certain that the government will perform them. Such activities will appear in the DoD commercial activities databases and are subject to commercial activities review, and the Secretary of Defense is obliged to explain why these activities cannot be contracted to the private sector.

Note that certain sections of 10 USC and other legislation (described below) exempt or prohibit A-76 review of certain DoD activities, many of which are categorized as “commercial activities.”

Review of Commercial Activities

Circular A-76 (para. 9e) requires that government agencies inventory and review all commercial activities. The *Revised Supplemental Handbook* prescribes the manner in which the review of commercial activities must proceed:

- If the commercial activity must be performed by government employees for national defense purposes or if government provision is needed to maintain the quality of direct patient care in government-operated hospitals, the function can remain in-house.
- If there is no satisfactory commercial source to provide the service, it may remain in-house.
- If the contracting process would lead to unacceptable delays, the function may remain in-house.
- If the function should be contracted to a noncompetitive preferential procurement program source in accordance with applicable regulations, it may be converted directly to a contract without going through a cost-comparison study as described below.

Cost-Comparison Studies

All activities not retained in-house for one of the above reasons and not contracted out under a preferential procurement program are subject to cost-comparison studies conducted by the following procedure:

- First, a distinction is made between activities that employ 10 or fewer full-time equivalent (FTE) civil service employees and all other activities. If the activity employs 10 or fewer FTEs and if there is meaningful and effective private-sector competition, a contract may be awarded without an in-house cost comparison. If there is not sufficient private-sector competition, then a cost-comparison must be done. If the activity employs more than 10 FTEs, the assistant secretary of the department in charge of the A-76 process can waive the cost-comparison requirement. Otherwise, the cost comparison must proceed.¹
- The government must develop a performance work statement (PWS) that clearly states what product or service is required, ideally without limiting the way in which the required product or service is provided.
- A task group must complete a management study to determine the most efficient organization (MEO) that conforms to the PWS and agency budgetary, regulatory, and personnel guidance. If the cost study results in a decision to perform the activity in-house rather than by contract, implementation of the in-house staffing estimate must be initiated within one month after cancellation of the solicitation and completely implemented within six months following the in-house decision.
- Once the performance MEO is complete, the government must estimate the costs it would incur in providing the service in-house according to the MEO. Cost-analysis guidelines are provided in the *Revised Supplemental Handbook* (OMB, 1996). The results of this cost analysis reflect the in-house bid.
- When the in-house bid is complete, it is secured with a contracting officer, to be compared with bids solicited from potential contractors.
- The installation must then estimate the costs of contract performance, which include the contract price of the best contractor bid, contract administration costs, adjustment for the federal in-

¹The number of military personnel billets in an activity does not influence the requirement to conduct a cost-comparison study. Also, if the number of civilian FTEs is less than 10, the services *may* conduct a study if they so choose.

come tax benefits of the contract, and one-time conversion costs. Examples of one-time labor-related conversion costs include health-benefit costs, severance pay, homeowner assistance, relocation and retraining expenses, and initial contractor security-clearance requirements (OMB, 1996, p. 7-42).

- If the total contract costs, including one-time costs incurred by the government to make the transition to outsourcing, are less than the total in-house cost estimate by an amount greater than 10 percent of government costs, then the contract should be awarded to the contractor. The 10-percent margin is added to the cost of contracting to account for transition costs related to loss of production, temporary decrease in efficiency and effectiveness, cost of retained grade and pay, and other unpredictable risks (OMB, 1996, p. 7-45).

Contract Restrictions

If a contract is awarded, it must include a provision requiring the contractor to give displaced federal employees the right of first refusal for employment openings under the contract in positions for which they are qualified. The contracts must also include clauses and provisions related to equal employment opportunities, veterans' preference, minimum wages, and fringe benefits, when applicable.

Government agencies are required to exert maximum effort to find available positions for potentially displaced employees, including

- providing priority consideration for positions in the agency.
- establishing a Reemployment Priority List (RPL) and a Priority Placement Program (PPP).
- paying reasonable costs for training and relocation that contribute directly to placement.
- coordinating with the Office of Personnel Management (OPM) on use of the Interagency Career Transition Assistance Plan and with the Department of Labor on private-sector opportunities.
- assisting such individuals in applying for employment with the contractor.

DEPARTMENT OF DEFENSE POLICY

DoD policy on outsourcing is contained in DoD Directive 4100.15, *Commercial Activities Program* (DoD, 1989) and DoD Instruction 4100.33, *Commercial Activities Program Procedures* (DoD, 1985). The directive provides general policies; the instruction provides detailed procedures for defense activities in conducting cost-comparison studies.

The DoD directive includes the following seven policy principles: (1) ensure DoD mission accomplishment, (2) achieve economy and quality through competition, (3) retain governmental functions in-house, (4) rely on the commercial sector, (5) delegate decision authority and responsibility, (6) share resources saved, and (7) provide placement assistance to displaced employees.

Incorporating and supplementing parts of the OMB A-76 *Revised Supplemental Handbook*, the DoD instruction provides more-detailed procedural guidance. It also provides the criteria established by the Secretary of Defense for retaining in-house performance of a commercial activity for national defense reasons. These criteria fall into two categories. First, activities staffed with military personnel are retained in-house if the activity is needed to train or gain experience in required military skills, to provide a rotation base for overseas or sea-to-shore assignments, or to provide career progression in needed military skills. Second, core logistics activities, identified under 10 USC 2464, are retained in-house.² Of 640,000 positions in DoD commercial activities performed in-house at the end of FY 1994, 58 percent were excluded from outsourcing consideration for these national defense reasons.³

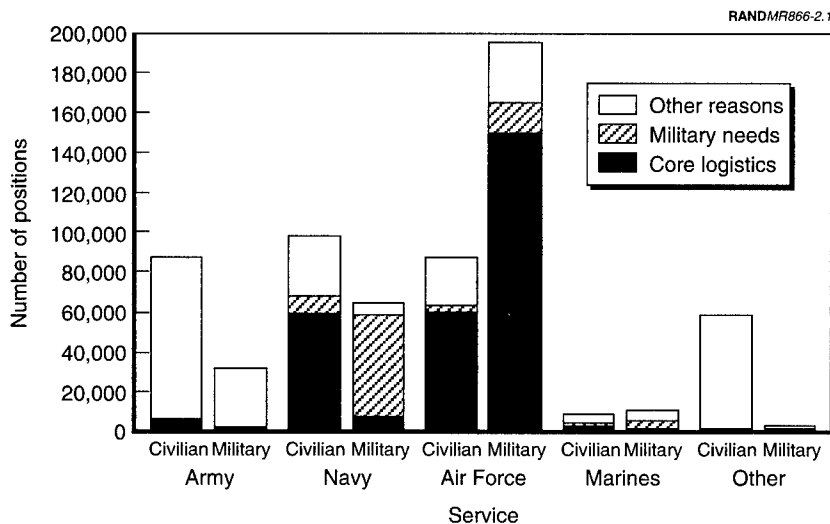
If an in-house commercial activity is not excluded from outsourcing for national defense reasons, the services must identify other reasons for performing it in-house (DoD, 1985, p. 4-1), which may include

²A *core logistics activity* is one that is "necessary to maintain a logistics capability (including personnel, equipment, and facilities) to ensure a ready and controlled source of technical competence and resources necessary to ensure effective and timely response to a mobilization, national defense contingency situation, and other emergency requirements" (DoD, 1989, p. 5).

³Among the excluded positions, 141,000 were civil service and 230,000 were military (DoD, 1995a).

having been previously subjected to cost-comparison studies under Circular A-76 or having been scheduled for future study. Figure 2.1 shows the proportion of positions in each category, by service. Note that, compared with the other services, the Army excludes a far smaller proportion of its commercial billets for national defense (military needs or core logistics) reasons than do the other services.

Past cost-comparison studies conducted by the services and defense agencies seem to have been modest in scope, given the total number of in-house positions in DoD commercial activities. Between 1978 and 1994, DoD conducted cost-comparison studies on 65,014 in-house civilian positions, outsourcing the functions employing 32,156 of them. Another 2,668 civilians were affected by direct conversion to contract performance without cost-comparison studies. As of the end of 1994, DoD continued to perform in-house commercial activities using 336,890 civilian authorizations. Of these authorizations, 195,504 were judged to have no compelling national defense reason



SOURCE: DoD, 1995a (CAIRS as of the end of FY 94).

Figure 2.1—Commercial Activity Billets by Reason for In-House Performance, by Service

for continued in-house performance, although some have been subjected to cost-comparison studies and have been retained in-house because of lower cost or lack of a satisfactory commercial source.⁴ Table 2.1 puts these data in perspective and supplies matching counts of military positions affected. These numbers indicate a potential for outsourcing on a far greater scale than is occurring currently.

Table 2.1
Civilian and Military Positions in Commercial Activities

Positions in commercial activities subjected to cost-comparison studies, FY 1978–1994 ^a	Civilian	65,014
	Military	17,632
	Total	82,646
Positions converted to contract performance based on cost-comparison studies, FY 1978–1994 ^a	Civilian	32,156
	Military	13,947
	Total	46,103
Positions converted to contract performance without cost-comparison studies, FY 1978–1994 ^a	Civilian	2,668
	Military	6,718
	Total	9,386
Remaining in-house positions in commercial activities, as of the end of FY 94 ^b	Civilian	336,890
	Military	302,956
	Total	639,846
Remaining in-house positions with no national defense reason for in-house performance, as of the end of FY 94 ^{b,c}	Civilian	195,504
	Military	72,540
	Total	268,044

^aDoD, 1995b (CAMIS as of the end of FY 94).

^bDoD, 1995a (CAIRS as of the end of FY 94).

^cExcludes records with “reason for in-house operations” codes A (core logistics activities) and C (military skill-related reasons) (see DoD, 1985, p. 4-2-1).

⁴Data from two sources provide different counts of the number of positions previously reviewed in cost-comparison studies. CAMIS (DoD, 1995b) shows that 32,858 civilian positions have been reviewed and retained in-house as of the end of FY 94. CAIRS shows that only 11,050 civilian positions have been reviewed and retained in-house because of lower cost and another 878 because of no satisfactory commercial source. However, many other positions in the CAIRS file are categorized in such a way that it is impossible to determine whether they have been reviewed previously.

U.S. CODE

Contracting for performance of commercial or industrial functions within DoD is governed by 10 USC 2461 through 2471. For commercial activities, the Code very generally requires the Secretary of Defense to decide between contract and in-house performance based on cost studies such as those prescribed by Circular A-76. For depot-level maintenance and repair activities, cost-comparison studies are not specifically prescribed, but the proportion of work performed by contractors has been capped.

The Code contains the following provisions for outsourcing and cost-comparison studies:

- For any function being performed by over 45 civil service employees, the Secretary of Defense is required to notify Congress of any decision to study an in-house-to-contract conversion; to report costs of performance by contract and MEO, potential economic effect on the employees involved, and effects on military missions; to report potential economic effects on the local community and federal government if more than 75 employees are involved; and to notify Congress of any final decision to convert to contract performance.
- Annually, the Secretary of Defense must report the extent to which commercial and industrial functions are performed by contractors.
- The Secretary of Defense is generally required to procure supplies or services from the private sector if they are cheaper than realistic and fair costs for in-house provision.
- In general, if functions performed by 50 or more contractor employees are converted to in-house performance, the Secretary must maintain cost-comparison data.
- With minor exceptions, fire-fighting and security-guard functions at continental United States (CONUS) locations may not be outsourced.
- A-76 cost comparisons shall include the employee-benefit retirement costs of both DoD and contractors.

- During A-76 studies, affected employees or their union representatives must be consulted at least monthly.
- For fiscal years 1990 through 1995, installation commanders had the sole authority and responsibility to enter into contracts for commercial activity and to decide which activities would be reviewed under Circular A-76, subject to regulations prescribed by the Secretary of Defense. Legislation for fiscal year 1996 did not extend this provision. Installation commanders have always had the authority to undertake cost studies; however, while in effect, this provision excluded service, agency, and major command headquarters from key outsourcing decision processes and made it difficult or impossible to study umbrella contracts covering services to be performed across multiple installations.

The Code also contains the following provisions that apply specifically to depot-level maintenance and repair activities:

- In general, functions identified by the Secretary of Defense as core logistics capabilities will not be subjected to the A-76 process. This restriction may be waived by the Secretary under some circumstances, with appropriate reporting to the Senate Armed Services, House National Security, and Senate and House Appropriations Committees.
- Not more than 40 percent of the funds available for depot-level maintenance and repair may be used for contract performance. Civilian employees at depot-level functions must be managed by budget rather than end strength.⁵ Secretarial waiver of the 40-percent limit is permitted, and an annual report to Congress on the percentage of funds devoted to contract performance is required.⁶

⁵Constraints on labor consumption found in legislation or policy may be expressed in several ways. One way is to limit the budget allocation for pay and benefits. Another is to limit the number of employees or full-time equivalents. *End strength* is a variation of the latter in which limits are set on the number of employees on the rolls as of the end of a specified fiscal year.

⁶The National Defense Authorization Act for Fiscal Year 1996 required the Secretary of Defense to develop a policy regarding the distribution of depot-level work between in-house and contractor performance and repealed the 40-percent limitation, effective upon passage of additional legislation indicating approval of the Secretary's policy by

- Depot-level maintenance or repair workloads valued at \$3 million or more may be transferred to a contractor or another depot only if merit-based or competitive selection procedures are used. A-76 procedures are not applicable to these types of change.
- DoD depots are eligible to compete for depot-level maintenance and repair work for any federal agency.
- For a fair price, the services and defense agencies may lease excess equipment and facilities to outsiders.

UNCODIFIED LEGISLATIVE RESTRICTIONS AND PROVISIONS

Several other legislative restrictions on outsourcing, generally in effect for temporary periods of time, have not been codified. These appear as either recurring or one-time provisions of annual DoD appropriations and authorizations acts.

In recent years, annual DoD appropriations acts have included two restrictions on conversion from in-house to contract performance. The first of these reads as follows:

None of the funds appropriated by this Act shall be available to convert to contractor performance an activity or function of the Department of Defense that, on or after the date of enactment of this Act, is performed by more than ten Department of Defense civilian employees until a most efficient and cost-effective organization analysis is completed on such activity or function and certification of the analysis is made to the Committee on Appropriations of the House of Representatives and the Senate. . . .⁷

This provision imposes a lower threshold than does 10 USC 2461 (see above), which requires a formal cost-comparison study only when the function affects over 45 civil service employees. The two standards reflect the differing views of the Defense appropriating and authorizing committees.

the Senate Armed Services and House National Security Committees. See Section 311, National Defense Authorization Act for Fiscal Year 1996.

⁷Appears in Section 9026 of the fiscal year 1993 act, Section 8022 of the fiscal year 1994 act, Section 8020 of the fiscal year 1995 act, and Section 8020 of the fiscal year 1996 act.

A second provision routinely appearing in appropriations legislation reads as follows:

None of the funds appropriated by this Act shall be available to perform any cost study pursuant to the provisions of OMB Circular A-76 if the study being performed exceeds a period of twenty-four months after initiation of such study with respect to a single function activity or forty-eight months after initiation of such study for a multi-function activity.⁸

In our discussions with service, major command, and installation officials responsible for A-76 cost-comparison studies, we were told that this provision is sometimes used by those affected locally to scuttle undesired outsourcing proposals. If development of a PWS, MEO, and the cost study itself is prolonged, the study is discontinued and outsourcing does not take place. However, persistent managers can re-initiate canceled studies.⁹

A sweeping restriction was included in the fiscal year 1993 and 1994 National Defense Authorization Acts. The 1993 version read as follows:

... the Secretary of Defense may not, during the period beginning on the date of the enactment of this Act [October 23, 1992] and ending on September 30, 1993, enter into any contract for the performance of a commercial activity in any case in which the contract results from a cost comparison study conducted by the Department

⁸Appears in Section 9065 of the fiscal year 1993 act, Section 8048 of the fiscal year 1994 act, Section 8043 of the fiscal year 1995 act, and Section 8037 of the fiscal year 1996 act. Keating, Camm, and Hanks (1997) report that the provision first appeared in the fiscal year 1991 act.

⁹An official at one installation we visited (identified as Air Force No. 3 in subsequent chapters of this report) reported that the studies we were examining had been canceled twice and re-initiated under new cost-study numbers. The A-76 contact claimed that functional managers delayed the completion of the PWS and/or MEO so that the congressional time limit for the completion of A-76 cost competitions would elapse, hoping that the activity would thus remain in-house. The installation aggressively pursued outsourcing and demanded that the study be re-started with new cost-study numbers. Indeed, the CAMIS file contains two canceled records and one complete record for each of the activities at this installation.

of Defense under Office of Management and Budget Circular A-76 or any successor administrative regulation or policy.¹⁰

The 1994 act contained a similar restriction, extending through April 1, 1994.¹¹ Note that the restriction did not preclude cost-comparison studies, but did preclude conversion to contract performance upon completion of a study. However, the apparent effect of this 18-month moratorium in all services and defense agencies except the Air Force was abandonment of ongoing cost-comparison studies. Once the pipeline closed and the infrastructure for conducting studies was allowed to degrade, the services were slow to restart. Table 2.2 shows how much the moratorium reduced completed studies.

The National Defense Authorization Act for Fiscal Year 1996 introduced several new restrictions and provisions.¹² These generally seem more outsourcing-friendly than provisions found in earlier years' Defense Authorization Acts:

- The Defense Printing Service must, during fiscal year 1996, use private-sector production for at least 70 percent of its printing and duplicating requirements.
- By October 1, 1996, the Secretary of Defense must submit to Congress a plan for private-sector performance of appropriated-fund civilian payroll functions and implement the plan if it is no more costly than in-house performance. The Secretary must also report on other accounting and finance functions that are appropriate for outsourcing.
- The Secretary of Defense must conduct a pilot program to test private-sector performance of nonappropriated-fund accounting and finance functions.

¹⁰Section 312, National Defense Authorization Act for Fiscal Year 1993 (Public Law 102-484, October 23, 1992).

¹¹Section 313, National Defense Authorization Act for Fiscal Year 1994 (Public Law 103-160, November 30, 1993).

¹²See Sections 351, 353, 354, 355, and 357 of the act (Public Law 104-106, February 10, 1996).

Table 2.2

**Completed Cost-Comparison Studies of In-House Commercial Activities,
by Fiscal Year in Which Completed and Service/Agency**

Fiscal Year	Army	Navy	Air Force	Marines	Defense Logistics Agency	Defense Commissary Service	Defense Mapping Agency	Total
1978	1	0	0	0	0	0	0	1
1979	7	38	53	1	0	0	0	99
1980	46	40	60	8	0	0	0	154
1981	68	15	123	1	0	0	0	207
1982	69	110	71	5	3	0	0	258
1983	38	266	72	2	1	0	0	379
1984	44	129	54	6	4	0	0	237
1985	26	81	56	7	5	0	0	175
1986	49	71	61	5	1	0	0	187
1987	38	44	64	2	0	0	0	148
1988	56	41	33	3	1	19	0	153
1989	13	24	27	0	0	4	2	70
1990	6	16	16	3	0	6	0	47
1991	7	1	37	1	0	10	0	56
1992	6	1	6	0	0	0	0	13
1993	0	0	0	0	0	0	0	0
1994	1	0	6	0	0	0	0	7
1995	2	0	7	0	0			9
1996	3	0	0	0	0			3
Total	480	877	746	44	15	39	2	2,203

NOTE: FY 78 through 94 data were derived from the FY 94 CAMIS database. FY 95 and 96 data (through May 1996) were obtained from service and agency points of contact; blank cells indicate unknown data (no point of contact located).

- The Defense Logistics Agency (DLA) must conduct a demonstration project to evaluate outsourcing of the audit function of identifying overpayments to vendors.
- The Secretary of Defense may conduct a pilot program to evaluate outsourcing of the operation of a school within the Department of Defense Dependents' Schools System.
- The Secretary of Defense is required to increase reliance on private-sector sources for commercial products and services. The Secretary was required to submit a report, by April 15, 1996, listing commercial activities performed in-house, plans for conversion to contract performance, reasons for not converting,

an assessment of the advantages and disadvantages of converting, legislative and regulatory impediments to outsourcing, and the desirability of terminating the applicability of OMB Circular A-76 to the Department of Defense.

A bill recently introduced in the House of Representatives, the Anti-Bundling Act, would prohibit the government from using umbrella contracts.¹³ It is apparently designed to protect the interests of small business, which are at a disadvantage in competing for contracts that bundle either the same activity across many installations or many activities at a single installation. However, if enacted, this legislation would also prevent DoD agencies from realizing savings in the transaction costs involved in cost-comparison studies, contract negotiation, and contract administration. It would also tend to block outsourcing at scales where efficiencies might be realized. Its effect would be to increase the cost and reduce the scope of outsourcing.

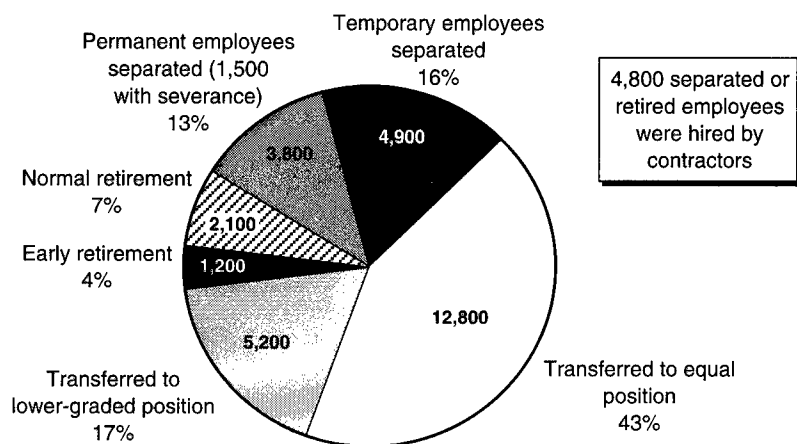
CODE OF FEDERAL REGULATIONS

Title 5, Code of Federal Regulations (5 CFR) contains civil service regulations and sets forth the basic rights and responsibilities of federal workers. While few of these regulations relate directly to outsourcing, 5 CFR has a significant indirect effect because it grants federal employees certain rights if they are displaced as a result of the outsourcing action. Agencies are obliged to follow certain procedures when deciding who will be released from the civil service and to give preference to those displaced workers when there are job openings in other parts of the agency.

Between 1978 and 1994, these regulations have governed the disposition of 30,100 DoD civil service employees displaced through outsourcing actions. Figure 2.2 breaks out the disposition into several categories. A brief discussion of the employees most affected appears in Appendix D.

¹³"A bill to provide protections against bundling of contract requirements in federal procurement," H.R. 3934, was introduced by Representative Bill Zeliff in July 1996. The bill was referred to the Committee on National Security and the Subcommittee on Government Management, Information and Technology.

RANDMR866-2.2



SOURCE: DoD, 1995b (CAMIS as of the end of FY 94).

Figure 2.2

Figure 2.2—DoD Civil Service Employees Displaced by Outsourcing Actions, 1978–1994

5 CFR Section 351.801 (under the authority of Section 4433 of Public Law 102-484) stipulates that, between January 1993 and January 2000, permanent civilian DoD employees are entitled to written notice of separation 120 days prior to release whenever a “significant number” will be released—a stipulation that clearly restricts how rapidly DoD can move from in-house to private-sector provision of a service following an A-76 competition.

The policies and procedures related to a RIF are described in 5 CFR 351.202–902. RIF procedures must be followed when a competitive service employee is furloughed for more than 30 days, or is separated, demoted or reassigned due to the following circumstances: lack of work, shortage of funds, insufficient personnel ceiling, reorganization, exercise of reemployment rights or restoration rights, or the position is reclassified due to erosion of duties. Therefore, RIF procedures must be followed if a competitive service employee is

separated, demoted, or reassigned because an activity or function is outsourced.¹⁴

RIF procedures determine the manner and the order in which individuals are released from the civil service. In general, temporary employees are released before permanent employees, nonveterans are released before veterans, and people with fewer years of government service are released before those with more years. If all positions in a competitive area are to be abolished within three months, then employees may be released without regard to these factors.

When a permanent ("career") employee with a current annual performance rating of "minimally successful" or higher is released from a competitive level, that employee may have a right to take a position currently occupied by others. These limited rights to move into positions held by others are called "bumping" and "retreating." *Bumping* leads to the displacement of someone who is in a lower tenure group or someone in the same tenure group who has a lower veteran's preference standing.¹⁵ Bumping is not permitted solely on the basis of seniority in the same tenure group. Moreover, a person can only bump someone with the same or lower performance rating. *Retreating* is similar to bumping, but is permitted based on seniority within the same tenure group. However, the jobs to which one can retreat are more restrictive than those available for bumping: The position must be "essentially identical" to one previously held. All bumping and retreating rights are restricted to a defined competitive area.¹⁶ Each worker displaced by a bumping or retreating action

¹⁴*Competitive service employees* are those employees who are in positions for which they must compete for appointment on the basis of merit. Most civil service positions are in the competitive service. Notable exceptions include positions for political appointees, which require confirmation by the Senate, and Senior Executive Service positions (see 5 USC 2102).

¹⁵*Tenure groups* reflect employment status and determine an individual's level of job security. There are three tenure groups. The highest group consists of career employees not serving a probationary period. The next group consists of career-conditional employees and career employees serving under a probationary period. The lowest group consists of term employees and other limited-tenure employees.

¹⁶*Competitive areas* are defined by the agency and define the group of people who are competing for positions during a RIF. The minimum competitive area is a bureau, major command, directorate, or other major subdivision within a local commuting area.

becomes eligible to bump or retreat to other jobs. Typically, one RIF action sets off a chain of several bumps and/or retreats.

If an employee is unable to bump or retreat into another position, the agency must offer assignment to any vacant position at an equal or lower grade level for which the employee is qualified so long as the vacancy is no more than three grade levels below the employee's current level. At its discretion, the agency may offer an individual a position at a grade level more than three levels below his or her current level in lieu of separation.

When bumping, retreating, or other RIF-related assignment to a lower-grade position occurs, employees retain some of their old grade and pay entitlements for specified periods under rules specified in 5 CFR 536. For example, employees moved to a lower-grade position retain their original grade for promotional and placement purposes for two years and continue to get full pay increases during that time. After two years, they lose the promotion rights associated with the old grade¹⁷ but retain pay at the old level and continue to get a limited annual cost-of-living raise (equal to 50 percent of the raise received by the top step in their new grade), until their new grade wages "catch up" with their retained pay level.

The government has established several placement programs to assist displaced employees. These programs are described in 5 CFR 330.201–209 and 330.301–309. The rules stipulate that the primary responsibility for displaced employees rests with the agency, and thus the most important program to assist displaced employees is a within-agency placement program. For example, each agency is required to establish and maintain a Reemployment Priority List for each commuting area. Employees separated because of a RIF are eligible for the RPL as long as they are permanent employees serving in the competitive service, have met minimal performance-rating requirements, and have not declined another offer for position comparable to their most recent one.

The Interagency Placement Program (IPP), a supplement to the RPL, helps displaced employees find employment in other agencies within the federal government. This program is available to those

¹⁷See 5 CFR 337.102.

who have been separated from their federal jobs as a result of agency-workforce reductions. To be eligible for this program, a person must meet requirements similar to those for the RPL.

In addition, DoD has established its own placement program, the Priority Placement Program. This program uses a computerized system to assist separated DoD employees in finding an alternative position in the DoD. A person registered with the program will receive only one offer; if that offer is declined, the individual is removed from the program.

The government has temporarily granted special-consideration status to displaced DoD employees separated between October 1991 and October 1997 through a RIF (see 5 CFR 330.901–909). Such employees are entitled to full consideration for employment in any other federal agency or government corporation during the two years following separation. These separated employees must be considered before other candidates outside the agency can be considered. *Full consideration* is defined as careful, bona fide review of the qualifications of the displaced employee as described in his or her application form, and including an interview if the displaced employee's qualifications are comparable to those of other outside candidates in the highest-qualified group who are being interviewed. Before selecting another candidate from outside the agency, the agency must ensure that the displaced employee was accorded at least the same degree of consideration as the other candidate.

The civil service regulations regarding RIFs place nontrivial burdens on DoD, thus making outsourcing less attractive to managers than it might otherwise be.

ACQUISITION-RELATED LEGISLATION

Several pieces of acquisition-related legislation place restrictions on the wage and labor practices of contractors, thereby tending to raise contract prices.

The Walsh-Healey Public Contracts Act of 1936 (codified in 41 USC 35–45) sets certain requirements on the prevailing wage, working hours, and working conditions that must be met by employers with whom the federal government enters into contracts exceeding

\$10,000 for the manufacture or supply of materials, supplies, articles, and equipment. There was also a provision, deleted in 1994, that such contracts must be with the manufacturer of or regular dealer in the supplies manufactured or used in performing the contract. While this deleted provision may have served to protect the government from fraud, it also served to limit the number of firms that could compete for government contracts, and it probably deterred the creation of new firms that might specialize in serving the government.

The Davis-Bacon Act of 1931 (codified in 40 USC 276–277) requires that federal government construction contracts over \$2,000 contain a clause stipulating that a laborer or mechanic employed directly at the site of the work must receive a wage equal to or greater than the local prevailing wage rate. DoL is required to determine such prevailing wage rates for different types of construction activities in different geographical areas. These prevailing wage rates are published in the *Federal Register*. Once they are incorporated into a contract, these wage rates normally remain in effect for the life of the contract.

The Public Service Contract Act of 1965, as amended (codified in 41 USC 351 et seq.) applies to service contracts over \$2,500. The act stipulates that such contracts contain provisions about minimum wage and fringe benefits, safe and sanitary working conditions, notification to employees of the minimum allowable compensation, and equivalent federal employee classifications and wage rates. 41 USC 353(d) prohibits such contracts from exceeding 5 years in duration. The Public Service Contract Act requires contractors to pay their employees prevailing wages and fringe benefits as determined by DoL. When a successor contractor is performing substantially the same services performed in the same locality as the previous contractor, the successor contractor must pay wages and fringe benefits at least equal to those contained in a collective-bargaining agreement entered into under the previous contract. The act also requires that the contract contain a statement of equivalent rates for federal hires, which reflects those wage rates and fringe benefits that would be paid by the contracting activity if it were performed by government workers.

The Public Service Contract Act and the Davis-Bacon Act place a lower bound on the wages that a federal contractor may pay, thereby

ensuring that the savings that follow from an outsourcing action do not come entirely at the expense of the workers' wages and that the government's pursuit of a low-cost contract does not lead to diminished wages for private-sector workers as contractors try to cut costs in order to win the contract. To the extent that this wage constraint is binding, these acts serve to limit the savings the government can generate through outsourcing.

SUMMARY

These many special requirements imposed on federal agencies in general and DoD in particular create an environment much different from what private-sector firms encounter when seeking to outsource. Managers seeking to outsource a DoD activity often face a lengthy and costly process. Employees and other managers opposed to outsourcing have numerous opportunities to delay or block it. In Chapter Three, we examine several cases in which outsourcing proposals survived this process and reached implementation. For these cases, we also examine how policy and legislation shape the effects of the outsourcing action on civil service employees. In Chapter Four, we then quantify the probabilities that proposals will reach implementation and, if so, the probabilities and magnitude of employee displacements.

LESSONS FROM SITE VISITS

As part of our research on the effect of outsourcing on civil service employees, a team of three RAND researchers visited four DoD installations and two major command headquarters. The purpose of these visits was fivefold:

- To verify the data in the CAMIS database relating to the effect of A-76 cost competitions on civilian personnel and determine whether there were data-collection issues of which we should be aware.
- To gather detailed contextual information on what happens to civilian personnel in the course of an A-76 action and the strategies used by installation-level civilian personnel offices and others to minimize adverse effects.
- To gather detailed information on the cost-comparison process, with an eye toward identifying aspects of the process that might systematically distort the results.
- To gather qualitative information on the productivity of the in-house workforce versus that of the contracted workforce.
- To assess commanders' and managers' perspectives on outsourcing.

As discussed in Chapter One, the installations we chose to visit were among the few with recently completed or ongoing cost-comparison studies. The methodology we followed in conducting these visits is described in Appendix A. To protect the confidentiality of officials who offered candid observations during our visits, we have not

identified the specific installations we visited. However, the general characteristics of the outsourced activities at the one Army and three Air Force installations (referred to as Air Force No. 1, Air Force No. 2, and Air Force No. 3) are as follows:

- At the Army installation, 40 civil service positions in food preparation were contracted out.
- At Air Force No. 1, the outsourcing action involved several functions (supply, transportation, and civil engineering) related to base operating support, and affected 101 civil service positions and 177 military positions.
- At Air Force No. 2, the A-76 action led to the outsourcing of trainer fabrication activities, which involved 17 civil service positions.
- At Air Force No. 3, two separate cost studies resulted in the outsourcing of grounds maintenance and family housing maintenance. These actions displaced people in 17 and 36 civil service positions, respectively.

At Air Force No. 1, the contractor had received notice to proceed but had not yet taken over the contract. Therefore, we were unable to gather information on contractor performance. In all other cases, the contractors had already assumed control of the function and we were able to collect information on contractor performance.

Our observations in this chapter are divided into four broad areas: civilian personnel office (CPO) strategies and their effects, cost comparisons, productivity, and commanders' and managers' perspectives.

CPO STRATEGIES

Although outsourcing can be expected to increase efficiency and effectiveness, it can also be expected to displace or otherwise disrupt the civil service workforce. Accordingly, a human resource management plan that helps to minimize the disruption is an important element in implementing an outsourcing decision. For example, a National Academy of Public Administration (1995) report encourages managers to use involuntary separations only as a last resort. During

our visits to the four installations, we observed the human resource management strategies employed by CPOs.

Our site-visit interviews indicated that installation commanders were consistently and strongly committed to their civil service workforce, and that the CPOs perceived an obligation to do everything possible to find an alternative position for each worker who wanted to remain in the civil service.¹ At the Army installation and at Air Force No. 2 and No. 3, the civilian personnel officers were proud to report that no permanent employees had been separated as a result of the outsourcing action. At Air Force No. 1, the RIF process was not complete and the CPO was working diligently to find a place for everyone, often at the expense of efficiency, as we describe below. At the same time, serious questions remain about whether the strategies for dealing with displaced employees are sufficient or in the best interests of the government.

The commitment on the part of management to the civil service workforce is matched by the desire of civil servants to retain their federal employment status. In our interviews with displaced employees, civil servants invariably reported that they would go to great lengths to retain their status as government employees. Workers with over 15 years of seniority reported that they would lose too much in retirement benefits if they were to leave.² Other workers argued that private-sector wages and benefits would not match those of the government. Job security, although diminished by government downsizing and outsourcing, is still generally regarded as more favorable in the civil service than in the private sector.

¹This sense of obligation appeared to be motivated in large part by a commitment to the people—a commitment that was particularly strong at one installation located in an extremely remote area with few alternative employment options.

²Although employees with over five years of service do not lose all retirement benefits upon separation, the methods for calculating retirement benefits penalize those who leave the civil service before they intend to retire, because the retirement benefit is based on nominal pay at the time of separation. Additionally, certain thresholds for age and years of service must be met in order for an employee to retire with an immediate annuity, as opposed to an annuity that begins at a later age. Therefore, a GS-13 who retires from the civil service today at age 62 with 15 years of service will receive a much larger retirement payment than someone who left a GS-13 position after 15 years of service 10 years ago for another position and is now eligible to draw retirement benefits at age 62.

Civilian personnel officers engage in several strategies to reduce the effect of outsourcing on permanent employees. These strategies tend to bias the information on personnel displacements recorded in the CAMIS database. The most common strategy, employed by civilian personnel officers at every installation we visited, is called "stockpiling vacancies." When a function comes under an A-76 cost study, it is quite common for people to try to transfer out of the activity into more-secure positions in areas that are not being studied or to retire voluntarily. In addition, positions that become vacant due to natural attrition in this and other parts of the installation are either left unfilled or are filled with temporary employees. If outsourcing occurs, displaced permanent employees can fill the vacant positions, or temporary employees can be terminated and replaced with permanent employees so that there will be fewer separations of permanent employees.

The use of temporary employees for this purpose is reflected in the fact that of 30,100 employees affected by outsourcing actions from 1978 through 1994 (as reported in the CAMIS database), 4,900, or 16 percent, were temporary employees who were separated, whereas temporary and nontenured workers made up only 9 percent of the DoD civil service workforce over this time. One problem that can arise when employing this strategy is that civil service regulations limit the duration of temporary employment to one year (extendable to two years). At Air Force No. 3, where the cost studies dragged on for almost a decade, the CPO had to get several exemptions from these rules to retain the temporary employees beyond the 2-year limit.³ These exemptions were allowed because the activity was under A-76 study and because other organizational restructuring activities were going on at that installation. By the time RIF notices

³5 CFR 316.401 allows agencies to use temporary employees to fill a position that is not expected to last more than one year, to fill vacancies for positions that are to be terminated, or to fill vacancies that will be used to place permanent employees who would otherwise be separated. These temporary appointments are authorized for one year, and may be extended to two years. The Office of Personnel Management must authorize extensions beyond the 2-year limit that are needed because of a base closure, major reorganization, restructuring, or other unusual circumstances.

were handed out, many of these “temporary” workers, most of whom were separated, had almost 10 years on the job.⁴

Although this was an extreme case, each installation we visited had a disproportionate number of temporary employees working in the function under study when the final decision to convert to contract performance was made. The civilian personnel officers try to assist temporary employees as well, but acknowledge that those employees have no right to other positions. As a result, temporary workers are frequently separated from federal employment.⁵

The practice of stockpiling vacancies allows CPOs to prepare for eventual displacements prior to an outsourcing action. If outsourcing occurs, they can also use more-aggressive strategies, such as Voluntary Separation Incentive Payments (VSIPs) and Voluntary Early Retirement Authority (VERA) installation-wide to free up positions for displaced workers. The CPO also negotiates with functional managers in other areas to hold positions open so that they will be available to people whose jobs are outsourced. For example, at Air Force No. 1, the director of another functional area (aircraft maintenance), which was experiencing a great deal of growth in workload, had been cooperative in accepting displaced supply, transportation, and civil engineering employees, not only by holding positions open for these employees but also by waiving experience requirements and providing training to them. Unfortunately, aircraft-maintenance work is strenuous, and many of the displaced workers were not meeting the physical requirements for work in this area.

At Air Force No. 3, the civilian personnel officer described the process for placing the people whose jobs were outsourced as one that

⁴One civilian personnel officer commented that it was fortunate that none of these “temporary” workers (whose benefits are sharply limited) died while working for the government, recalling the scandal that arose when a “temporary” maintenance worker with eight years of service at the Lincoln Memorial died with no life insurance policy or health policy for his surviving family.

⁵One of the rights that temporary workers do have is the right of first refusal of jobs with the contractor. At all installations, some of the temporary workers went to work for the contractor, usually because they could not find another position at the installation. At the Army installation, several temporary workers sought and found other temporary positions at the installation, preferring temporary government employment to a position with the contractor.

affects people in other functions in a variety of ways. First, the CPO offered VSIPs to all employees at the installation who were in the same series and grade as the people whose jobs were to be outsourced. Later, because fewer people than expected took the separation incentives, it expanded the program to include people holding any job for which a displaced employee might be qualified.

After the separation incentives had been accepted or declined, the CPO grouped similar positions into separate competitive levels, consisting of all positions in the same classification series and grade that were similar enough that the people occupying them could exchange positions with minimal disruption. Following standard RIF procedures, individuals occupying positions within one competitive area were placed in a retention register. An individual's standing in the retention register was determined by his/her tenure group, veteran preference standing within the tenure group, and years of service, including performance credit within a veteran subgroup. If there were more people than positions remaining in the organizations, employees with the lowest standing on the retention register were released from the competitive level and lost their right to a job in that competitive level. Sometimes, these displaced employees worked in one of the outsourced activities; at other times, they worked in another functional area but had less seniority than those who held outsourced jobs. Finally, the CPO used bumping and retraining rights and vacant positions to try to place those released from the competitive level in other positions.

As the previous illustration suggests, the effect of outsourcing on civil service employees is understated if the "impact" recorded in the CAMIS database includes only individuals who actually held the jobs that were outsourced. Because of seniority, that person could be moved to another position in the competitive area and, in so doing, displace a worker in a job that was not being outsourced; that effect might not be recorded in the CAMIS database. Understatement also occurs if someone in another function accepts separation incentives offered as a result of an outsourcing action.

Although we noted no specific problems with the manner in which data are collected and reported, the CAMIS reporting guidelines are unclear about which effects should be recorded. The installations we visited report only information on people who are subject to an in-

voluntary adverse action—the eleventh-hour effect on employees. Such reporting ignores displacements that occur before a RIF begins, such as voluntary separations, voluntary early retirement, or voluntary transfers (presumably to equal or higher-graded positions). It may be logical to report only the displacements that occur after the RIF begins, since other separations or transfers may be related not to the A-76 process but, rather, to natural attrition. However, it is worth noting that in calculating the effect of outsourcing on employees, the eleventh-hour emphasis might fail to include some other displacements that are largely a result of the A-76 process.

Another source of undercounting of displacements that is potentially more significant is the focus on individuals within the function under study. Such a reporting strategy does not record the effect of outsourcing on other workers in the installation. The site-visit interviews suggest that these secondary effects can be substantial; at Air Force No. 2, the civilian personnel officer asserted that 5–6 people at the installation were displaced through bumping and retreating procedures for every position lost.

To estimate how closely the displacements reported in the CAMIS database reflect actual displacements, we attempted to link the CAMIS file with service civilian personnel inventory and transaction files compiled by the Defense Manpower Data Center (DMDC). This attempt was, however, unsuccessful because the CAMIS and civilian personnel files did not share linkable installation and organization codes. Discussions with civilian personnel officers revealed that extremely rich information on all personnel actions is maintained at the installation level. This information is not aggregated, synthesized, or maintained at any higher level, but could be collected if OSD wanted to develop a more complete picture of what is happening to civil service employees. For example, local data could be obtained on the use of VSIPs, bumping, and retreating.

Effects of CPO Strategies

Civilian personnel officers are engaged in a delicate balancing act in which they attempt to do the best they can for federal employees while observing the myriad civil service regulations and trying to meet sometimes-conflicting deadlines. CPOs at several installations complained that they did not have enough time to effectively employ

all the programs available to minimize the displacement of employees by outsourcing. Although the workers are supposed to be off the payroll of that function by the time the contract goes into effect, strict rules stipulate minimum periods of notification for some programs, particularly RIFs.⁶ Additionally, a reasonable period during which VSIPs are offered must logically precede RIF notifications. The time constraints are imposed by law, OPM regulation, and the logic of the situation, and these elements are often in conflict.

While OSD may not be able to change any of these requirements, it could help ease the burden on local CPOs by providing videos, newsletters, or other standardized materials to inform employees of their rights or to keep the CPOs updated on effective personnel strategies. OSD could also advocate the creation of special teams of civilian personnel officers who could be deployed on a temporary basis to installations undergoing a large RIF because of outsourcing.⁷

The PPP and RPL. Interestingly, the DoD-wide or government-wide placement programs such as the PPP and the RPL do not ease the burden of the local CPOs. At the installations we visited, these programs are not being used as extensively as they might to help civil servants displaced by an outsourcing action to find alternative positions. Instead, installation-level CPOs go to great lengths to find a position—any position—within the installation for displaced employees, relying on the PPP and RPL only as a last resort.⁸

⁶5 CFR 351 requires 60 days' notice for RIFs. In addition, P.L. 102-484 and P.L. 103-337 require 120 days' notice for DoD employees when a "significant number" of employees will be released.

⁷Such assistance is available to installations going through a base realignment and closure (BRAC); however, none of the installations we visited had received assistance in dealing with the effects of outsourcing.

⁸In the most narrow sense, the CPO's tendency to avoid the PPP or RPL to place workers displaced by an outsourcing action is useful because it allows the local installation to find positions for its workers. However, adopting this localized strategy involves an inherent trade-off: By placing (often over-qualified) personnel in open positions at the same installation, the CPO reduces the potential supply of jobs available for displaced workers more generally through the PPP or RPL. Because there is a low supply of available jobs through these programs, the programs get a worse reputation and civilian personnel offices will try even harder to avoid them. In doing so, they further reduce the supply of available positions.

An alternative equilibrium based on positive expectations for placement through a centralized program might also exist. If more installations were filling vacancies

Localization. At the installations we visited, the extreme localization of the effort to place employees involved in an outsourcing action lowered morale and worker productivity, and raised costs. Although government-wide RIF rules give displaced employees rights to other jobs, generally in the same occupational series,⁹ an outsourcing action usually encompasses an entire occupational series, or at least a large portion of that series, which means that the series disappears at that installation. As a result, the CPOs there are often faced with the problem of finding jobs for a set of people with skills that are no longer needed at the installation. The flexibility that installations have to move current employees into new positions without offering those positions to people on the top of the PPP or RPL does not extend to allowing them to offer positions to employees at other installations within the local commuting area without invoking the PPP or RPL. As a result, installation-level CPOs do not coordinate directly with their counterparts at other local installations.

Displaced employees at Air Force No. 3 noted the inherent conflict in this installation-focused placement strategy. Several workers stated that they knew of vacant positions at another installation within the same commuting area that would have been more appropriate to their training and experience level. However, the other installation was "stockpiling" those vacancies. Other workers asserted that they would have been willing to relocate to assume a position commensurate with their experience but that they were not being considered for open positions at other Air Force installations. They also expressed the opinion that, in attempting to place the workers in new

through the program, CPOs would be more likely to refer displaced personnel to the program before placing them in local positions far below their retained grade levels.

The GAO (1996) recently found the PPP to be quite successful in placing workers displaced through a BRAC. The reluctance of workers to use the PPP in an outsourcing situation despite this success may reflect a fundamental aversion to relocation. Recall that the PPP is a computerized matching program and that employees are given only one job offer through this program. Given the option, most employees appear to prefer filling an immediate vacancy in a lower position in the same location rather than entering a queue for a higher position in an unknown location. Workers involved in a BRAC do not have this option.

⁹An *occupational series* is a set of positions that utilize similar basic skills but vary according to the level of responsibility and skill mastery required by the position. Examples of occupational series include cook, automotive mechanic, and economist. Note that it is possible, but unlikely, that a competitive level would include positions in different occupational series.

positions, the CPO looks only at their occupational series, not at their skills and qualifications. This state of affairs was particularly frustrating for employees who had been placed in positions for which they were either overqualified (e.g., an individual in grade 10 within the Wage Supervisor pay plan [WS-10] being placed in a position at grade 6 within the Wage Grade pay plan [WG-6]), or for which they were both overpaid and not well trained (e.g., an individual in grade 10 within the Wage Leader pay plan [WL-10] placed in an entry-level WG-4 position in a completely different functional area at the installation).¹⁰ See the “Wage Determination” subsection of this chapter for an explanation of pay scales.

A Filtering. The burden that an outsourcing action places on CPOs filters down to employees. We observed that, because CPOs do not receive additional resources when conducting a RIF, the assistance provided to employees in a small outsourcing action differed from that in a large outsourcing action. In the small outsourcing actions, the CPOs had a lot of individual contact with the affected personnel at all stages of the process. At the Army installation, the CPO had meetings each month with the employees’ union to keep people apprised of their rights. When the cost study began at Air Force No. 2, the CPO met with employees to inform them of the possibility of a RIF and encouraged them to update their civilian personnel records, explaining that doing so was important because of the way the RIF rules work. Once the results were announced, the CPO met with the workers every 2–3 weeks to explain the RIF process in general and the details of this specific RIF.

At Air Force No. 1, where a large outsourcing action was displacing many positions on the installation, employees we spoke with complained that they had little contact with the CPO and that they were not well informed of their rights or of the rules surrounding the RIF process.¹¹ While some employee complaints seemed to be exag-

¹⁰Civilian personnel officers at an installation are not required to offer vacancies to employees reached by a RIF. However, if they do so, they must fill the vacancies in the order of an employee’s position on the retention register. Position on the retention register depends on veteran preference status, as well as on performance and years of service.

¹¹The civilian personnel officer at Air Force No. 1 argued that the employees were informed, but that they simply did not want to listen to bad news.

gerated, it appeared to us that the task of running a RIF for approximately 100 civil service employees, combined with the time constraints imposed by a delayed outsourcing decision and a fixed contract start date, had overwhelmed the small CPO at this installation. It is not surprising that it would be difficult for a CPO to accommodate such a dramatic spike in its workload. Although the individuals appeared to have the best of intentions, the task seemed truly overwhelming.

Save-Pay Costs. The implementation of the outsourcing process imposes significant monetary costs on the government.¹² The most significant cost stems from civil service “save-pay” (retained grade and pay) rules,¹³ which, for a displaced WG-10 worker moved into a WG-4 position, means that this person will be paid at the WG-10 rate and will continue to get full pay increases for two years. After two years, she or he will continue to get a limited annual cost-of-living raise (equal to 50 percent of the raise received by step 5 in the WG-4 position now held), until WG-4 wages “catch up” with this retained pay level, at which point the individual would begin to receive normal cost-of-living raises for step 5 in the grade (WG-4, in this case) of the occupied position. Because the size of the annual cost-of-living increase is often dwarfed by the wage differential, it can take years for this “catch-up” to occur.¹⁴

Even in relatively small outsourcing actions at large installations, workers may face significant grade reductions. At Air Force No. 2, one worker was moved from a WG-9 position to a WG-4 position, and several others were moved down two wage grades, or from Wage Supervisor positions to Wage Grade positions. For workers, large outsourcing actions pose greater difficulties and more-significant

¹²Although we stress the fact that costs stemming from personnel policies should be included when evaluating the overall benefits of outsourcing, the personnel rules, regulations, and policies that generate these costs could be modified to reduce or eliminate them. In most cases, however, the rules, regulations, and policies are outside the purview of DoD.

¹³See 5 CFR 536.

¹⁴Assuming 3-percent annual cost-of-living raises and a typical wage rate schedule, we note that a WG-7 reduced to WG-5 will save pay for 5 years; a WG-8 reduced to WG-5 will save pay for 8 years; a WG-10 reduced to WG-4 will save pay for 16 years. Of course, the actual cost of save-pay rules will depend on a number of factors, such as subsequent separation or promotion of those with retained grade or pay.

costs for finding alternative positions. At Air Force No. 1, 64 employees have been offered positions in other functional areas at the installation, almost always at a lower grade. In one case, a WS-14 worker was moved into a WG-6 position; such grade changes are not uncommon because of the difference between the type of work that was outsourced and the types of jobs that remain at the installation. The civilian personnel officer at Air Force No. 1 estimates that retained grade and pay will cost the installation approximately \$250,000 per year.¹⁵

Productivity Loss. In addition to the monetary costs that retained grade and pay requirements impose on the government when civilian personnel are transferred to lower-graded positions, the effort on the part of CPOs to place everyone in a position preempts a manager's discretion to select the best worker for the job and can thus reduce the productivity of the workforce.

At both Air Force Nos. 1 and 3, skills requirements for certain jobs were waived so that displaced workers could be put in vacant positions. Not only must the installation bear any training costs associated with helping the workers acquire a new skill, but it also bears the cost of productivity lost because a more qualified worker could be performing the job. These training costs and the efficiency loss associated with the retraining process are not accounted for in the cost comparison. In several cases, the civilian personnel officers admitted positions were "created" for displaced personnel for whom there were no other options; the fact that workers are doing a job that did not exist before suggests that the placement process harms productivity.

Nevertheless, incurring these transitional costs may be necessary to avoid even greater worker, managerial, and political opposition to outsourcing than there is currently. Arguably, the number of outsourcing actions is greater, and therefore cost savings are greater, because the policies and programs generating these costs are in place.

¹⁵The contract performance costs for the first annual period were \$5.9 million, compared with in-house performance costs of \$6.8 million. Therefore, save pay consumes about one-fourth of the apparent savings.

Quality Assurance

When conversion to contract occurs, new requirements for quality assurance evaluators (QAEs), who verify contractor compliance with performance terms of the contract, are usually created. At each installation we visited, these positions were filled by civil service employees who were being displaced in the outsourcing actions. While such placement clearly works toward the objective of the CPO, it does not always result in qualified people being placed in these positions. At Air Force No. 2, a QAE noted that the QAE positions added in the conversion to contract performance were filled by displaced employees with some operations skills but no quality assurance experience. Although the installation provided them with some training in this area, the position carries with it a lot of responsibility and legal requirements to uphold.

One experienced QAE cautioned that lack of experience is a serious issue, because improperly performed inspections will not hold up in court. Similar concerns were expressed at Air Force No. 1. However, functional managers and contracting officers at the other installations seemed satisfied that the individuals selected for the QAE positions were well-qualified.

COST COMPARISONS

Other major issues we wanted to address through the site visits were whether certain costs are systematically ignored in the cost-comparison process and whether there are features of the process that create an unlevel playing field in comparing the contractor bid with the in-house bid. To address these issues, we examined development of performance work statements (PWSs) and most efficient organization (MEO) proposals, laws and regulations governing civil service and contractor wage determinations, retained grade and pay and other conversion costs, and contract-administration and other overhead costs.

PWS and MEO Development

Both PWSs and MEO proposals are prepared primarily by local installation personnel, who often have little or no experience in such work. Their inexperience can adversely affect local employee interests.

PWS. An issue raised at all installations was the escalation of costs that frequently occurs when an activity is contracted out—a phenomenon that several functional managers and installation commanders cited as evidence that the contractor was “low-balling” during the bidding process. The contracting officers and manpower officials offered different perspectives. They argued that, due to either oversight or overzealous cost-cutting efforts, the PWSs often tend to understate workload requirements or leave out important activities. As a result, the first months of contractor performance normally reveal deficiencies in the PWS, leading to contract modifications that, in turn, lead to increases in the costs of the contract.

Functional managers are responsible for developing the PWS with input from the manpower office, union representatives, and the contracting office. Several contracting officers noted that the people tasked with developing the PWS were not trained to write formal legal documents and did not have enough experience in the functional area to include the requisite information. Such comments were not intended as an indictment of the functional managers; they were simply statements that the development of a PWS is not part of their normal routine. Although the Army functional manager had developed ten other PWSs for food-preparation functions,¹⁶ other functional managers (particularly the civil service employees) had little or no experience developing PWSs. The Army functional manager suggested that there is a steep learning curve involved in gaining the knowledge required to develop PWSs. Whereas the first one he worked on took him six months to complete, the most recent one took him only 30 days.

¹⁶Note that food preparation is a relatively simple function to study. The contractor uses government facilities and equipment, processes food that remains in a government rationing account until consumed, and adheres to daily menus supplied by the Army.

Other functional managers confirmed that the development of a PWS requires a certain amount of expertise that can be gained only in the process of writing one. Normally, a given function at an installation will be studied only once. As a result, functional managers simply do not have the opportunity to gain that expertise. Although the Air Force installations received some short-term help from command headquarters in developing the PWS, the assistance was focused on assembling local teams who would develop the PWS and on providing a crash course on the basic requirements as opposed to detailed assistance in developing the actual PWS.

Several functional managers noted that it is difficult to get experienced civil service employees to agree to work on the PWS: They do not want to provide information that might result in their jobs being outsourced. Additionally, individuals involved in developing the PWS become "procurement officials" and face 2-year restrictions on post-service employment with a competing contractor—an important opportunity for continuing employment if their activity is outsourced.¹⁷ Because of the post-service employment restriction, many individuals recuse themselves.¹⁸

Tension between the objectives of command headquarters and installation commanders may also be the source of cost escalation. At one installation, an individual involved in the cost-study process commented that the original PWS was well done, but that it was revised by the A-76 team at command headquarters. In general, activities had been taken out and quality standards reduced to cut costs. He noted that such modifications were in conflict with the quality standards of the installation commander, and that the commander simply used contract modifications to put those standards back into the contract. These changes caused contract performance costs to rise above what the cost-comparison study anticipated.

¹⁷See 41 USC 423.

¹⁸Although we observed that few permanent employees go to work for the contractor when a function is outsourced, it is reasonable to assume that civil service personnel would like to keep that option open, given that they do not know what the possibilities for alternative placement at the installation will be when the cost study is completed.

MEO. Similar concerns were expressed about developing the MEO, which is the responsibility of the local manpower or resource management office, with input from the functional areas. In one functional area under study as part of the base operating support contract at Air Force No. 1, functional representatives reported that no senior or even middle-level managers were available to work on the MEO because of RIFs and reassignments. As a result, a rather inexperienced junior officer was in charge of developing the proposal.

To the extent that both the in-house and contractor bids are based on the PWS, changes in the PWS should increase the costs of both the in-house and the contract bid in a similar manner. However, our investigation revealed that MEOs are based on grosser workload measures than are contractor bids. For example, the contractor may use historical workload information to estimate the cost per transaction of a specific type, whereas the MEO developers will use a proxy for workload, such as the installation head count, to develop manpower estimates on which the in-house bid is based.¹⁹ If a PWS reduces workload requirements below the status quo, contractors are likely to reduce their bids accordingly, whereas MEO manpower estimates are likely to be insensitive to the reduction.

Wage Determination

Another issue related to the cost-comparison process and its fairness to the civil service workforce is the manner in which Federal Wage System (FWS) wages are determined. The FWS governs the pay scale for blue-collar Wage Grade (WG), Wage Leader (WL), and Wage Supervisor (WS) employees.²⁰ Heretofore, the commercial activities outsourced by DoD have been such that most employees affected are in FWS rather than General Schedule or other pay categories.

¹⁹It appears that the use of such gross workload measures stems from a lack of experience on the part of those individuals developing the MEO. Whereas private companies competing for government contracts have developed workload-estimation techniques over time, civil service personnel rarely work on more than one such workload estimate during a career.

²⁰Salaries for white-collar General Schedule (GS) workers are set through a different process.

FWS wages are based on a survey of private-sector wages for selected jobs in a local area.²¹ In determining a local wage schedule, DoD or another lead agency conducting the wage survey first collects information from private-sector employers and calculates an average private-sector wage for each job (e.g., janitor, carpenter, electrician) specified by regulation to be included in the survey.²² Each job also is associated with one of 15 wage grades, based on perceived skill requirements. The surveying agency develops a *payline* (a point of departure for the local wage scale) by regressing average job wages on job grade levels, then solving the regression equation for each grade level. The payline determines the wage at step 2 of each grade in the WG schedule.²³ Wages for the other 4 steps in each grade are derived by applying a 4-percent step-rate differential. Wages for step 2 in the WL and WS grades are also derived, although somewhat more complexly, as percentage offsets from the WG step-2 payline.

This process produces a wage schedule in which the federal wage for a given occupation may be above or below the prevailing private-sector wage for that occupation in the local area. One reason for this differential is that job grade levels may not correlate well with relative prevailing wages (i.e., a job with a relatively high local wage rate may be assigned a relatively low grade level). Another reason is that local wages determine step 2 of the wage grades, whereas Wage Grade employees are paid at an average step much greater than 2.²⁴ Thus, mean or median wages paid to federal employees would be expected to exceed mean or median wages in the local private-sector market for comparable employment.

The Public Service Contract Act requires private contractors to pay wages and provide fringe benefits equal to or greater than the local

²¹A more detailed description of the local wage determination process can be found in 5 CFR 532.201–317.

²²Lists of specified jobs are found in several parts of 5 CFR 532. Some lists contain jobs that are mandatorily surveyed, other lists contain jobs that are optionally surveyed at lead agency discretion, and still others contain jobs that are included only under special circumstances.

²³There are five steps in each wage, leader, or supervisor grade. Individuals progress through these steps on the basis of length of service.

²⁴At the end of fiscal year 1996, the average step among full-time DoD Wage Grade workers was 3.9. Appropriately, OMB Circular A-76 (*Revised Supplemental Handbook*) requires Wage Grade positions in an MEO to be costed at step 4 (1996, p. 20).

prevailing wage rates determined by DoL for a particular job in a particular area, or in accordance with an existing collective-bargaining agreement.²⁵ The contractors we interviewed said that the competitive-bidding process for government contracts results in a situation in which the contractors pay wages that are exactly equal to the DoL prevailing wage rates. DoL wage rates are determined for each occupation individually rather than through a smoothed and aggregated schedule such as that used for the FWS.

Thus, although both government and contractor wages are linked to private-sector prevailing wages, the different methodologies used to make these linkages can result in sharply different labor costs for government and contract employees. In our Army food-service case, the contractor is required to pay cooks at least \$8.75 per hour and first cooks at least \$10.50 per hour, according to the DoL wage determination. A government MEO would employ cooks at grades WG-5 and WG-8, for which local wages at step 4 are \$10.48 and \$12.22 per hour, respectively. Even at step 2 (\$9.71 and \$11.31 per hour), government pay would exceed the DoL wage determination in this occupation.

Other examples are taken from Air Force No. 1. In the supply function, the contractor must pay warehouse specialists at least \$8.74 per hour, whereas a government MEO must pay \$10.70 per hour for its comparable employees in step 4, grade WG-4. Although less likely, the opposite relationship can also hold. The contractor must pay all heating, refrigeration, and air conditioning mechanics \$12.72 per hour, whereas a government MEO can employ some workers in the comparable skill at grade WG-8 at only \$12.56 per hour.²⁶

²⁵41 USC 351 et seq.

²⁶Fringe benefits required by the Service Contract Act versus those provided to civil servants would also contribute to an unlevel playing field, but the differences are more difficult to evaluate. For Air Force No. 1, the DoL wage determination appended to the contract stipulates that the minimum employer contribution toward fringe benefits is "an average of \$2.56 per hour computed on the basis of all hours worked by service employees employed on the contract." *Fringe benefits* are defined here as life, accident, and health insurance plans, sick leave, pension plans, civic and personal leave, savings and thrift plans, and benefits such as severance pay. In the MEO, government fringe benefits were costed at 29.55 percent of salary (retirement, 21.7 percent; insurance, 4.7 percent; Medicare, 1.45 percent; other fringe benefits, 1.7 percent), or \$3.16 per hour and \$3.71 per hour for the WG-4 and WG-8 positions used as examples in the text. Note that the contractor's required average contribution is based on hours

This difference in the way wages are determined may promote contractor performance of certain activities and in-house performance of others. All other things being equal, to the extent that wage differentials are driving the results of the cost comparison, the operator (government or contractor) who is allowed to pay the lowest labor rate has an advantage.²⁷

Retained Grade and Pay, and Other Conversion Costs

Although all the installations we visited had moved some workers to lower-graded positions and offered separation incentives to some workers, only Air Force Nos. 1 and 3 included any one-time conversion costs in the calculation of the costs of contracting out. Air Force No. 1 included relocation expenses and severance pay in one-time conversion costs. Air Force No. 3 included only the costs of severance pay in the one-time conversion costs. Several people at Air Force No. 2 mentioned that lump-sum leave payments were also not calculated in the one-time conversion costs.²⁸ Other one-time conversion costs, such as the cost of staffing a transition team to orient the contractor to the government workplace, were also not included. For the Air Force No. 1 contract, this transition team is obliged to remain in place for up to 45 days after the contractor assumes control of the function.

worked (excluding leave), whereas the government's fringe-benefit cost is based on hours paid (including leave). Also note that the contractor's required average contribution covers costs for some items, such as leave, which are accounted for in the salary costs rather than in the fringe-benefit costs for government employees. In this example, (1) government fringe-benefit costs per hour of work are greater than the per-hour benefit costs that contractors must pay, (2) government fringe benefits are paid across more hours (hours paid) than contractor fringe benefits (hours worked), and (3) contractor fringe rate covers some items (notably, leave) that are in the base salary rate for civil servants. As a result, in this example, all three differences contribute to a higher cost of labor for the government than for the private-sector contractor.

²⁷Numerous issues are wrapped up in the notion of wage differentials between the public sector and private sector, such as the quality of the workers attracted, their productivity, and the value of benefits. It is beyond the scope of this research to address these issues, although it would be interesting to consider how the constraints imposed by the cost-comparison process figure in both the government's and private contractors' ability to manage human resources effectively.

²⁸Technically, these are *expenditures* rather than one-time conversion *costs*, because the government incurred the cost of leave *prior* to the separation of the employees and is obliged to pay for such leave regardless of whether an outsourcing action occurs.

Some conversion costs, such as retained grade and pay, may be difficult to calculate prior to actual implementation of an outsourcing-related RIF. The 10-percent margin required between a winning contractor bid and the MEO bid is intended to cover such unpredictable risks. However, in an objective cost-comparison process, it would seem that *any* substantial cost of either in-house or contractor performance that can be predicted reasonably well should be itemized. Detailed retrospective reviews of outsourcing costs are needed to determine which additional costs should be itemized and whether the 10-percent margin is appropriately sized to cover remaining unitemized expenses.

Contract-Administration and Other Overhead Costs

Contract-administration costs, including monitoring and quality-assurance costs, are included in the cost-comparison study. OMB guidelines specify the number of contract-administration positions that can be included in the cost calculation.²⁹ The cost-study documents suggest that some installations (Air Force Nos. 1 and 2) estimated only the cost associated with the QAEs, whereas some allocated additional spaces for the contracting office.³⁰ In general, the guidelines seem to underestimate the actual human resources the installations are devoting to contract administration, particularly during the first year of contract performance, when many modifications are made to the contract.

PRODUCTIVITY

Despite a significant amount of anxiety surrounding the outsourcing process, customers of the contractors at the installations we visited were pleased with the quality of the contractors' work. At the Army

²⁹See Table 3-1, OMB Circular A-76 (*Revised Supplemental Handbook*, 1996).

³⁰Costs of QAEs would seem to be excluded from the cost of contract performance by the terms of Part II, Chapter 3, paragraph C.1, of the A-76 *Revised Supplemental Handbook* (OMB, 1996). This paragraph allows for the inclusion of contract-administration costs but states that such costs do not include "inspection and other administrative requirements that would be common to contract and Government performance to assure acceptable performance" (p. 25). Nonetheless, we saw the costs of QAEs included in some cost-comparison data.

dining hall, soldiers were extremely satisfied with the food, which they said was much better than it had been when government workers were preparing it. They said that the contractor was responsive to their comments, and that the dining hall was kept very clean. Customers of the Air Force No. 2 trainer fabrication contractor were similarly satisfied, stressing that the current quality of the work was just as good as under in-house performance, but that the responsiveness and speed with which tasks were completed had improved significantly. In all cases, the contractors were maintaining or improving quality while using fewer employees; they were operating more productively.³¹

The major source of contractor productivity improvement cited by individuals at all installations is employing people with multiple occupational skills and assigning tasks that cross traditional occupational boundaries. Although the civil service system does not prohibit the development of multiskilled positions, the shift to multitasking would involve developing new position descriptions and job reclassification. We suspect that many classifiers lack either the knowledge or the inclination for such development and that managers do not always know what is possible.

Contractors have a profit-driven incentive to use people efficiently, and they have much more flexibility in how they do it. As a result, there is less downtime and the contractor can more easily accommodate special needs. In the Army food-service competition, the MEO called for five levels of cooks. The contractor distinguishes between only two types of cook, mainly for wage-setting purposes. Even with that distinction, the more highly skilled cooks can routinely be asked to perform the more low-skilled duties if the need arises. The Air Force No. 2 trainer fabrication contractor uses one person as both a supply clerk and an assistant manager, and the supervisor is also a worker.

³¹When considering this discussion on productivity improvement, it is necessary to keep in mind that we were examining instances in which the MEO was weak relative to the contractor bid, which is why the activity was outsourced. However, as we note in the data analysis, 52 percent of the completed cost studies were won by the MEO, suggesting that these sorts of productivity improvements are not always possible.

A second source of improved productivity is a reduction in administration. The contractors we interviewed claimed that they use fewer support staff. They also organize with fewer levels of supervision and, consequently, use fewer supervisors than the government.

Worker motivation was also cited as an important source of productivity improvement. The general sentiment among the contractors and some functional managers was that government workers know that the civil service system protects them from being fired except in extreme cases. Some workers, but certainly not all, exploit that knowledge and do not work very hard. The grounds maintenance supervisor at Air Force No. 3, who used to be a civil service employee, said that, under in-house performance, 10 percent of the workers did all the work. Under contract performance, the contractor has more flexibility to fire workers for poor performance, which motivates them to work harder.

Contractors may also operate more efficiently by paying lower wages and by offering workers less leave and vacation, although wages and benefits are governed by the Service Contract Act as noted above.

COMMANDERS' AND MANAGERS' PERSPECTIVES

The attitude of functional managers and installation commanders varied across the installations we visited. The functional manager at the Army installation viewed conversion to contract performance as positive, noting that once a contract is signed, the money devoted to that activity is "fenced"—it can no longer be cut in piecemeal fashion to cover shortfalls in other areas. However, at every Air Force installation, at least one person expressed concern about what could happen to the quality of the service under contract performance.

The worst-case scenario was that the contractor would inflexibly perform to the minimum contract specifications and refuse to do any additional work without a contract modification. This anxiety was particularly strong at Air Force No. 1, where the contractor had yet to take over. In other cases where contracts had already been in effect, the managers admitted that the contractors were actually quite flexible, that they had a good working relationship with the contractors, and that the contractors were willing to accommodate special needs and go out of their way to satisfy the government. At the Army instal-

lation and Air Force Nos. 2 and 3, where local managers of the contract were former government employees, everyone was quite satisfied with contractor performance. Several functional managers suggested that having a manager who was familiar with government processes was key to a good relationship. At the same time, contracting officers at Air Force Nos. 2 and 3 mentioned that the contracts contained a number of modifications made both before and after the performance start date, with attendant escalation of costs.

Amidst the concerns about quality sacrifices, whether the concerns about quality are justified and whether quality standards are unrealistically high have come into question. The grounds maintenance contractor at Air Force No. 3 (a former government employee) received high praise from others at the installation for responding to installation needs. However, the manager noted that, at first, the installation managers were unreasonable in their expectations and exploited his willingness to respond to emergencies. The contract manager had to push the installation to prioritize special tasks and to compensate by releasing the contractor from some lower-priority routine obligations associated with the contract.

Some commanders and functional managers we encountered during our visits felt that they had less control over outsourced workforces than over in-house workforces and, therefore, less influence over the quality of outcomes. The capacity to use in-house workforces to meet special needs, such as supporting special social or public-affairs functions, was frequently cited. This view reflects a profound misunderstanding on the part of managers at the installation level about actual costs.

If a civil service workforce can “just do the extra work,” it is because the organization is overstaffed, carrying slack capacity to meet such special needs. In some cases, it makes sense to carry such excess capacity, particularly when the function is crucial and it would be difficult to hire temporary workers to respond to intermittent increases in workloads. However, maintaining such slack capacity increases the basic cost of the operation. As a result, we do not believe that complaints about the contractor demanding more money for more work reflect inefficiency on the part of the contractor.

Indeed, the contracting arrangement can promote efficiency in two ways: (1) by reducing the average cost of production, and (2) by forcing managers to confront the costs of their "emergency requests" and to prioritize their needs accordingly.

Additionally, the downside risk of poor contractor performance may not be as severe as commanders often assert. At Air Force No. 1, where an umbrella contract covered a large and essential part of the installation's support infrastructure, the commander assumed that a default by the contractor (resulting, for example, from a strike or a business failure) would force him to curtail or shut down his primary mission operations until qualified military or civil service workers, if available, could be brought in from other installations. However, the functional manager at the Army installation, who had more experience overseeing contract operations than any other functional manager we encountered, had been faced with a default by a contractor and had successfully worked around it with little or no mission degradation. The workaround was to provide temporary civil service appointments to all of the contractor's employees until the default condition could be resolved.

Several commanders and managers, primarily those with some experience dealing with contractors, preferred the forms of control available to them under the terms of a contract. Contracts can specify awards as incentives for good contractor performance and/or penalties for substandard performance. Although cost remains the overriding factor, the contractor's reputation can play a role in decisions to extend the contract (the period covered by a service contract is typically a base year plus four option years) or in re-competition for a follow-on contract. Some commanders and managers thought that these incentives caused contractors to be more responsive than in-house activities.

As commanders and managers become more comfortable with contractor reliability and available workarounds, the distaste for outsourcing exhibited by many of them may begin to wane. The attractiveness of contract versus in-house workforces might then be conditioned by commanders' capacity to supply incentives for quality performance. If the terms of contracts allow commanders to differentiate rewards to a greater degree than the terms of civil service employment, they may increasingly favor outsourcing over

in-house activities. Thus, the dearth of both meaningful performance awards and penalties for poor performance for civil service employees could contribute to a faster pace and greater extent of outsourcing.

SUMMARY

In general, we noted in our site visits that cost-comparison studies can present heavy burdens and unaccustomed challenges for local activities. CPOs must plan and manage a workforce reduction. Functional managers' staffs and manpower/resource management staffs must develop detailed PWSs and MEOs, often for the first time. Commanders must make decisions for which they may have had little or no prior experience. It would appear that local installations could benefit from more assistance from staff elements at higher headquarters, where expertise in handling outsourcing issues can be cultivated.

We also noted instances in which policy or practice tends to adversely affect the competitiveness of in-house workforces. For example, A-76 procedures fail to fully capture all costs of conversion from in-house to contractor performance. Adjustments to the conversion-cost-calculating process would make it fairer to in-house employees and more likely to generate true savings for the government. Certain wage-setting processes and classification-system inflexibilities cause in-house workers to be more expensive or less productive than comparable private-sector workers. Appropriate policy adjustments here could result in reduced costs, even at activities that are not subject to outsourcing.

MODELING THE IMPACTS OF OUTSOURCING ON CIVIL SERVICE EMPLOYEES

This chapter discusses a model that describes the impact on civil service employees of activities studied under the A-76 cost-comparison process. We use this model in conjunction with the CAMIS data set to estimate the historical relationship between these impacts and various characteristics of commercial activities that have been subjected to cost comparisons. Identifying these relationships provides us with a better understanding of the cost-comparison process and allows us to better predict the outcomes of future cost studies.

We describe the outcomes using a multistage model that reflects the structure of the process. This structure has two primary advantages over a single-stage model. First, it provides more insight into the process by allowing the stages at which particular characteristics of the cost study have their effect to be better isolated. Second, it results in a modular predictive model that can be adjusted one piece at a time, so that a policy change affecting one stage of the process but not others can be well represented.

A MULTISTAGE MODEL

The A-76 cost-study process can be represented as a series of stages that must all be passed for civil service personnel to be displaced. Some commercial activities are excluded from the A-76 cost-study process for national defense or other reasons (see Chapter Two). Each service then selects activities for study from the set of activities that have not been excluded. Unfortunately, we have very limited information on the entire pool of in-house commercial activities;

thus, the data available to us were not adequate for modeling the process by which a billet is selected for study. The model will therefore begin with the set of studied activities in the fiscal year 1994 CAMIS file. This file contained 4,311 records, reduced to 3,817 after we removed duplicates (reflecting transferred, consolidated, and broken-out studies) and activities that did not begin in-house.¹

The structure of the entire multistage model, depicted in Figure 4.1, may be summarized as follows:

- **Stage One: Study Completion.** Is the study completed? If so, go to Stage Two.
- **Stage Two: Study Outcome.** Is the activity outsourced? If so, go to Stage Three.
- **Stage Three: Presence of Impact.** Does it affect personnel? If so, go to Stage Four.
- **Stage Four: Magnitude of Impact.** How large are the displacements?

The first stage in our model is study completion. If studies are not completed, few civil service employees are displaced. The first stage thus models the probability of study completion. Of the 3,817 activities studied and not reclassified, 2,193 were listed as completed, 1,534 as canceled, and 90 as in progress. In-progress studies that had started prior to 1992 were reclassified as "canceled," because such cases contradict the 2- or 4-year limit on A-76 studies and may therefore reflect failures to update data.² Thus, only 57 percent of studies pass the study-completion stage.

The second stage is the study outcome. Virtually all personnel displacements take place when a contract is awarded; only 1 percent of activities that remained in-house had any reported impact on civil service employees. The cumulative effect of these cases was very

¹Few cost-comparison studies have been conducted on outsourced activities to determine whether they should remain outsourced or be brought in-house.

²Among these 90 cases were three multifunction contracts that might truly be in progress because the limit on these contracts is four years.

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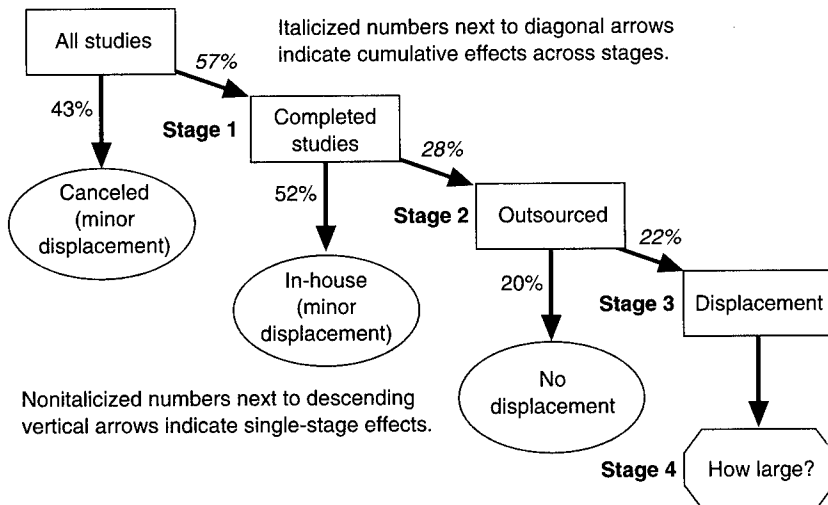


Figure 4.1—A Multistage Model of the A-76 Cost-Study Process

small and, hence, negligible. By comparison, 80 percent of activities that were outsourced had some reported personnel displacement.

It is somewhat surprising that so few of the studies culminating in an in-house win cause civil servants to be displaced. Even when an activity remains in-house, A-76 procedures require the government to implement an MEO, which often involves fewer people than are currently performing the work. We suspect that there are some displacements in these activities, but that they are generally not reported.³ In any event, ignoring the small or unreported personnel

³In developing an MEO, all positions currently held by military personnel are typically converted to civilian slots. If the activity has a significant proportion of military personnel performing the function, conversion to MEO could result in an increase in civil service positions, and hence no displacement of civil service personnel. However, even when the total MEO personnel requirements were lower than the number of civil service personnel working in the area at the start of the cost-study process, there was no reported displacement of civil service personnel. Although our case-study site visits did not include a study that remained in-house, several of the issues raised as reasons why personnel displacement was underreported in those cases (see Chapter

displacements from activities that remain in-house allows for a simplification that minimally degrades the accuracy achievable with the available data.

In sum, the second stage models the probability that a completed study is outsourced, and assumes that the effect of a study that remains in-house is negligible. A total of 1,050 activities were outsourced. Thus, 48 percent of completed studies and only 28 percent of studied activities pass the study-outcome (outsourcing) stage.

For those studies that result in outsourcing, the next question is whether that outsourcing led to a reported impact on civil service employees.⁴ Not all studies that result in the activity being awarded to a contractor displace civil service employees. The five measures of employee displacement that we use are as follows:

- **Separation of permanent employees:** number of permanent employees separated as of the contract start date.
- **Transfers to lower-graded positions:** number of permanent employees transferred to lower-graded positions as of the contract start date.
- **Lateral transfers:** number of permanent employees transferred to equally graded positions as of the contract start date.
- **Retirements:** number of permanent employees who took early or normal retirement as a result of the action, as of the contract start date.
- **Total displacements:** number of permanent employees falling into any one of the above four categories, plus the number of temporary employees separated.

Three) could lead to an underreporting of the effect on civil service personnel in the conversion to MEO as well.

CAMIS reporting guidelines further complicate the issue. DoD CAMIS guidelines are ambiguous with respect to whether personnel displacement should be recorded when the MEO wins the competition; Air Force and Navy CAMIS guidelines state explicitly that personnel displacements need not be recorded when the MEO wins.

⁴As noted in Chapter Three, the impact on employees as reported in the CAMIS database may seriously underestimate the actual impact.

Although, at first, separations of temporary employees may not appear to be of sufficient importance to include in the total-displacements measure, the practice of stockpiling vacancies and filling them with temporary employees (discussed in Chapter Three) suggests that temporary-employee separations may to some extent reflect unmeasured effects on permanent employees (especially transfers) that may have occurred prior to the final decision date. For this reason, the total-displacements measure may be a useful overall measure of effect on permanent employees.

For each of the five measures, the third stage models the probability that displacement occurred. Of outsourced activities, 30 percent had separation of permanent employees, 34 percent had transfers to lower-graded positions, 41 percent had retirements, 73 percent had lateral transfers, and 80 percent had displacements of some kind. Table 4.1 reports the percentages of studies that have effects on personnel, starting from each stage discussed.⁵

The fourth and final stage of the model measures the magnitude of employee displacements. Whereas the first three stages are represented by binary (Yes/No) outcome measures, the final stage is represented by a continuous variable. For each of the five measures of displacement, this stage models the magnitude of the displacement, given that some displacement of that type occurs.

Table 4.1

Proportion of Activities with Civil Service Employee Displacements

Displacement Measure	Studied Activities	Completed Studies	Outsourced Activities
Separation of permanent employees	8%	14%	30%
Transfer to lower-graded positions	10%	16%	34%
Retirement	11%	20%	41%
Lateral transfer	20%	35%	73%
Any displacement	22%	38%	80%
Total number of activities	3,817	2,193	1,050

⁵It excludes the few personnel displacements that resulted when activities remained in-house.

Estimating the Multistage Model

The following is a brief overview of how the multistage model was estimated. Details are provided in Appendix B.

The first three stages had binary outcomes, which were estimated using logistic regression. The first stage used all observations, and study completion was the dependent variable. The second stage used only those observations for which a study was completed, and the dependent variable was whether the function was outsourced. At the third stage, only observations in which outsourcing occurred were used. Five different equations were fit, one with each of the five measures of displacement. For each measure, the dependent variable was whether the outsourcing resulted in one or more displacements of the given type. This stage therefore models the likelihood of *some* displacement of a given type.

The fourth stage had continuous outcomes, which were estimated using multivariate linear regression. Five equations were fit, one for each of the five displacement measures. The model used only observations having some displacements of the given type. The dependent variable for each measure was the number of displacements of the given type. This stage therefore models the magnitude of the displacements that are present.

The separation of displacement into two stages for presence and magnitude may seem unnecessary, but it serves two functions. First, the high proportion of instances with no displacement precludes effective one-stage modeling of the magnitude (among other things, it violates the assumption of normality for the dependent variable). Second, in some instances, this partitioning provides additional analytic insight.

Predictor Variables for the Multistage Model

The model used a single set of *predictors*—factors that figure in or determine outcomes—for each of the four stages in the model. We considered as predictors only variables that are generally available at the initiation of a cost study to allow for a more straightforward and uniform prediction and to avoid the difficulties that the use of endogenous variables would engender. We retained in the model

only variables that had low rates of missing values and that were of some predictive value for at least one of the stages. The set of predictor variables is as follows:

- **Size:** the number of civilian and military authorizations allocated to the commercial activity at the time of the start of the cost comparison.⁶ The minimum, maximum, and quartiles of the distribution of this variable for all studied activities appear in Table 4.2.
- **Proportion civilian:** the proportion of the manpower estimate authorizations that are civilian. The minimum, maximum, and quartiles of the distribution of this variable for all studied activities appear in Table 4.2.
- **Solicitation type:** whether contract bids were *negotiated* or used *sealed bids*. Of all studied activities, 34 percent were negotiated.
- **Service/agency:** the military service or DoD agency conducting the study. This includes the Army, Air Force, Navy, Marines, Defense Commissary Agency (DeCA), Defense Logistics Agency (DLA), and Defense Mapping Agency (DMA). The distribution of this variable for completed studies is shown in Table 2.2 (p. 26).
- **Function:** the functional area of the studied commercial activity. To facilitate analysis, we modified the DoD functional categories used in CAMIS to those shown in Table 4.3, which also includes the distribution of studied activities by function.
- **Date:** the period in which the cost-comparison study was initiated (approved for study). For purposes of analysis, this variable takes on the values *prior to 1981*, *1981–1984*, *1985–1988*, and *after 1988*. The distribution of this variable for completed studies is shown in Table 2.2.

⁶This “manpower estimate” is a preliminary estimate of the size of the activity. It is used instead of the subsequent “current authorized positions” and “baseline workyears” estimates (which correspond to the PWS), both of which are often missing, especially for studies that are eventually canceled. Furthermore, the latter two estimates of size are very highly correlated with the first (they are usually identical) when all exist.

Table 4.2
Distributions of Size and Proportion of Civilians
for All Studied Activities

	Size	Proportion Civilian
Minimum	1	.01
25th percentile	7	.90
Median	16	1.00
75th percentile	39	1.00
Maximum	1,408	1.00

Tables C.9, C.10, and C.11 in Appendix C illustrate the relative influence of these predictor variables on the number of personnel displacements. These tables list coefficients that indicate the relative number of workers displaced as a function of a predictor variable, given that some personnel displacements occurred, after controlling for all other predictors.⁷

A SUPPLEMENTARY NET-EFFECTS MODEL

It is possible for predictor variables to have offsetting effects at different stages in the multistage model (e.g., a given predictor might be associated with less completion, but more outsourcing when completed). To depict the net effects of the predictors across all stages, we developed a supplementary net-effects model.⁸ Unlike the multistage model, this “start-to-finish” model is not modularly adjustable, nor is it well suited for prediction. Nevertheless, it is useful for summarizing the net effects of the predictors in the historical data. The results of this model will be used for that purpose below.

⁷As an example, looking at column *func_{4,1}* in Table C.9, we can see that the ratio of coefficients for a health services activity and an “other nonmanufacturing” activity is .5812/1, or 58 percent. Thus, a health service activity is predicted to have only 58 percent of the total displacements predicted for an “other nonmanufacturing” activity. For an “other nonmanufacturing” activity relative to a multifunction activity, the ratio is 1/1.2371, or 81 percent.

⁸The net-effects model is not simply a product of outputs from the four stages of the multistage model. Rather, it is an independently developed single-stage model.

Table 4.3
Function Categories

Category Used in This Study	CAMIS Code	Included Functions	Proportion of Studied Activities
Social services	G	Commissary stores, community and family services, and recreational activities	8%
	U	Education and training ^a	1%
Health services	H	Self-explanatory	3%
Equipment maintenance and repair	J	Self-explanatory	5%
Depot maintenance and repair	K	Self-explanatory	<1%
Research and development support	R	Self-explanatory	<1%
Installation services	S	Custodial and food services, financial and payroll services, motor vehicle operation and maintenance, guard services, utility operation and maintenance	20%
Other non-manufacturing	T	Ocean cargo operations, storage and warehousing, administrative support	26%
Data processing	W	Self-explanatory	5%
Manufacturing	X	Self-explanatory	<1%
Real property maintenance and repair	Z	Maintenance, repair, alteration, and minor construction of buildings, structures, and grounds	8%
Multifunction	P	All cost studies with more than one functional area listed	22%

^aThere is some evidence that functions of code U are completed at a lower rate than functions of code G. Accordingly, we separated these functions in the first stage of the model.

All predictor variables used in the multistage model were also used in the net-effects model (size, proportion civilian, date, solicitation type, service/agency, function). The cases used in developing the net-effects model consisted of all studied activities, i.e., the cases used in the first stage of the multistage model. The estimation of this model is detailed in Appendix B.

ANALYSIS OF THE CAMIS DATA

The following discussion summarizes statistically significant effects in the multistage and net-effects models described above.⁹ Note that each of these findings refers to the effect of a given variable after controlling for the effects of the other explanatory variables. For example, when it is said that the Army has a low rate of study completion, that means that the rate of study completion for the Army is low, given what would otherwise be expected from the size, proportion civilian, solicitation type, date, and function of the activities studied by the Army. The association of these effects with the predictor variables does not necessarily imply causation by the predictor variables. Nonetheless, these results may yield insights into the effects of the A-76 process.

Effects by Stage

Table 4.4 illustrates the relationships between the predictor variables and the results of study completion (Stage One) and study outcome (Stage Two). For example, larger studies are associated with lower probabilities of completion but higher probabilities of outsourcing if completed.

Table 4.5 illustrates the relationships between the predictor variables and the outcomes of presence of displacement, given that a study has been completed (Stage Three) and magnitude of displacement, given that there is a displacement (Stage Four). For example, Army

⁹Reported results are statistically significant ($p < .05$), after Bonferroni corrections were made for familywise error rate in the multilevel independent variables. For multilevel independent variables, the comparison is relative to the sample average effect of other levels of the variable in question.

Table 4.4
Associations of Predictor Variables with Study Completion and Study Outcome

Variable	Variable Value	Study Completion	Study Outcome
Size	Larger	–	+
Proportion civilian	Larger		–
Solicitation type	Negotiated bid		–
Service	Army	–	
	Air Force	+	+
	Navy		
	Marines		
	DeCA		
	DLA		–
Function	DMA	–	
	Social (Code G—community services)	+	+
	Social (Code U—education and training)	–	+
	Health	–	–
	Equipment maintenance and repair	+	
	Depot		–
	Research and development		
	Installation services		
	Other nonmanufacturing		
	Data processing		
	Manufacturing	–	
	Real property		
	Multifunction		–
Date	< 1981	+	
	1981–1984		
	1985–1988		
	> 1988	–	

NOTE: For *study completion*, “+” indicates a higher probability of completion and “–” indicates a lower probability of completion. For *study outcome*, “+” indicates a higher probability of outsourcing, given that the study was completed, and “–” indicates a lower probability of outsourcing.

Table 4.5

Variable	Variable Value	Presence of Displacement ^a					Magnitude of Displacement ^a				
		TD ^b	Sp ^b	RT ^b	LG ^b	LT ^b	TD ^b	Sp ^b	RT ^b	LG ^b	LT ^b
Size	Larger						+	+	+	+	+
Proportion civilian	Larger		+	+			+	+	+	+	+
Solicitation type	Negotiated bid					+				+	+
Service	Army	+	+	+	+	+	+				+
	Air Force										
	Navy	-	-	-	-	-	-				
	Marines		+	+	+						
	DeCA									-	-
	DIA										
	DMA										
Function	Social	+	+			+			-		
	Health										-
	Equipment M&R						-				
	Depot				+				+		
	R&D										
	Installation services										
Other nonmanufacturing											

Table 4.5—continued

Variable	Variable Value	Presence of Displacement ^a				Magnitude of Displacement ^a					
		TD ^b	SP ^b	RT ^b	LG ^b	LT ^b	TD ^b	SP ^b	RT ^b	LG ^b	LT ^b
Date	Data processing		-								
	Manufacturing										
	Real property									+	
	Multifunction										
		+		+			+		+		
	< 1981										
	1981-1984	+									
	1985-1988	+	+								
	> 1988			-							

^aFor *presence of displacement*, "+" indicates a higher probability that outsourcing of an activity of this type will have personnel displacements and "-" indicates a lower probability. For *magnitude of displacement*, "+" indicates a larger expected number of displaced personnel, given that some displacements of the given type occurred, and "-" indicates fewer expected displaced personnel.

^bTD = total displacements, SP = separations of permanent employees, RT = retirements, LG = transfers to lower-graded positions, LT = lateral transfers.

functions that have been outsourced experience a higher probability of all five types of displacement than do those of other services and agencies. Also, when an Army function does have personnel displacements, the number of total displacements and lateral transfers is likely to be especially large.

Table 4.6 summarizes results by using the net-effects model to predict total displacements from studied activities. This model predicts, for example, that a studied social services function is associated with greater total displacements of workers than a typical activity in another function.

Effects by Variable

Size. One of the more striking sets of results concerns the effect of size on outcomes. Studies of larger functions are completed somewhat less often, but the functions are outsourced more often when the studies are completed, and have much larger displacements when they are outsourced.¹⁰ The low completion rate is more than compensated for by the higher rate of outsourcing and higher displacement level. Our site visits and review of policy suggested that outsourcing is a political issue. A larger competition is more likely to be challenged because more people are threatened and, hence, have an incentive to mobilize to oppose the action. The fact that completed large studies are likely to be outsourced might stem from economies of scale. Or it might stem from the fact that a larger contract is likely to provide the contractor with more opportunities for multiskilling/multitasking and administrative streamlining, which we observed are typical sources of productivity improvement in the conversion to contract. Such productivity-enhancing changes are not easily incorporated into the MEO, which gives the contractor an advantage in the cost competition for larger activities.

Proportion Civilian. Another interesting result is that the likelihood of outsourcing decreases as the proportion of authorizations that are

¹⁰As can be seen in Eqs. C.11–C.15 of Appendix C, the exponents for the effect of size on the number of personnel displacements are in the range of .6 to .9, meaning that the number of displacements grows at less than a linear rate with size. In other words, although the displacement is larger numerically when larger activities are outsourced, the percentage of employees affected is somewhat smaller for larger activities.

Table 4.6
Associations of Predictor Variables with Net Effects
on Total Displacements of Personnel

Variable	Variable Value	Total Displacements
Size	Larger	+
Proportion civilian	Larger	
Solicitation type	Negotiated bid	-
Service	Army	+
	Air Force	+
	Navy	-
	Marines	
	DeCA	
	DLA	
	DMA	
Function	Social	+
	Health	-
	Equipment M&R	+
	Depot	-
	R&D	
	Installation service	
	Other	
	nonmanufacturing	
	Data processing	
	Manufacturing	
	Real property	+
	Multifunction	-
Date	< 1981	
	1981-1984	
	1985-1988	
	> 1988	-

NOTE: "+" indicates a studied activity of the given type is associated with greater total displacement of personnel, and "-" indicates less total displacement of personnel.

civilian increases. When a function falls under an A-76 cost competition, the MEO is typically developed using civilian authorizations in place of current military authorizations. Therefore, the relatively high cost of military members should not contribute to this effect. However, the site visits revealed that the development of the MEO plays a crucial role in determining the outcome of the cost study.

Even when the MEO is based on a completely civil service workforce, it is difficult for the government to develop good workload estimates. Doing so becomes more of a challenge when the MEO will involve a fundamental change in the structure of the workforce (from military to civilian). Another possible explanation for the relationship observed here is that MEO developers have less incentive to prepare a competitive MEO if most of the jobs to be lost are military.

Solicitation Type. All other things being equal, negotiated bids are less likely to be outsourced than are sealed bids, probably because negotiated bids tend to restrict competition, making it more likely that the MEO bid will win.¹¹ A contracting officer encountered on one of our site visits predicted that best-value source selection (whereby the bid is evaluated on technical merit as well as cost) will be used more often in the future. In contrast to our finding, this source felt that it is harder for the MEO to win negotiated bids because a technical plan, needed by the contracting officer to evaluate the special merits of the bid, does not normally accompany an MEO submission.

Function. Completed multifunction studies are less likely to be outsourced, perhaps because the large range of activities expected from a single contractor restricts competition. However, outsourced multifunction contracts have a high likelihood of displacing personnel, and tend to result in larger displacements (especially retirements and transfers to lower-graded positions), even after size is taken into account. This outcome is consistent with the observation that civilian personnel office strategies minimize displacements by stockpiling vacancies and moving people around the installation. A multifunction contract minimizes the opportunities for such stockpiling because it is likely to affect a larger proportion of the total installation workforce, as well as jobs in related functions (further minimizing the opportunity to place people in related positions). Currently, multifunction contracts have a low rate of outsourcing. If

¹¹Theoretically, competitiveness could be measured by examining the CAMIS variable "Numbers of Bids or Offers Received," which records the number of commercial bids or offers received in response to the solicitation. The usefulness of this variable is limited by questionable data quality: 73 percent of activities that were actually contracted out report no commercial bids or offers. Only 11 percent of all studied activities report any commercial bids or offers.

regulations changed to make contractors more likely to win multifunction contracts, however, such contracts could become a significant source of civil service employee displacement.

Another notable finding is the very high rate of completion for social services functions (code G—community services) and high rates of outsourcing and displacement for social functions in general. These may exist because more-intense competition in the private sector makes contractors more efficient or because of wage discrepancies between the private and public sectors, as discussed in Chapter Two.

Date. After controlling for other factors, we found that completion rates were highest for studies begun prior to 1981 and lowest for those started after 1988. The higher rate of completion in the early years might stem from the fact that the civil service workers either did not realize how the process would affect them or had not yet mobilized to resist the process. The lower rate of completion for studies initiated recently reflects the moratorium on A-76 competitions and the 24-/48-month cancellation policy discussed in Chapter Two.

Service/Agency. After controlling for other factors, we found that the Air Force (high rates of completion and outsourcing) and Army (likely and large displacements for activities that are outsourced) were associated with large displacements. For the Navy, both the likelihood and magnitude of displacements were smaller. It is difficult to interpret these “inherent” differences between the services, which may simply result from differences in reporting CAMIS data. However, the services have a great deal of flexibility in applying the A-76 process, and whatever flexibilities they have can lead to important differences in outcomes. Further investigation of these differences might yield insight into the A-76 process and its effect.

DeCA’s low rate of separation of permanent employees and transfers when displacement was present might be attributable to a high proportion of temporary workers employed by that agency or perhaps to a high turnover rate among permanent employees.

PREDICTION USING THE MULTISTAGE MODEL

DoD and service civilian personnel managers may want to use the multistage model to predict the personnel displacements that might result from the study of a set of commercial activities. The equations in Appendix C allow these predictions to be made. They provide a best estimate of the number of displacements for a particular commercial activity.

Selecting Input Values for Predictor Variables

To use the prediction equations in Appendix C, an analyst must first select values to be used for each of the six predictor variables. Selecting levels for size, proportion civilian, function, service/agency, and solicitation type is relatively straightforward. The selection of starting date can be more complex. The date variable explains variation in the dependent variables that results not from the start date of the cost study per se but, rather, from factors that are highly correlated with the date. Thus, the date variable is used as a proxy for a number of factors, such as the policy environment, that are not explicitly modeled. The parameter estimates for the date variable reflect the baseline level of displacement in a particular political and economic environment. The fact that these estimates have changed over time reflects changes in the baseline level of outsourcing unexplained by the five other predictors.

In selecting an appropriate date for predictive purposes, the analyst should consider the similarities and differences between future and historical environments for outsourcing. To select "after 1988" as the date is to assume that the procedure will be carried out in approximately the same fashion as has been typical for A-76 studies initiated after 1988. If the atmosphere is suspected to be more like that for studies initiated in 1981–1984, that value might be selected, even for the prediction of a study that is to take place in the future. Since selecting a date variable may be difficult, there is also a *historical average* input available for this variable, which uses the average baseline over the entire history of the competition.

An Example

The prediction equations can be used to generate intermediate predictions, such as the probability of a study being completed, and final predictions, such as the number of retirements that will result. To illustrate their use, we consider a hypothetical Air Force installation services activity that has 60 authorizations, of which 90 percent are civilian, and that is competed for outsourcing through a sealed-bid procedure. We use the historical average for the date variable.

The equations in Appendix C predict that this activity has a 76-percent chance of completion and a 54-percent chance of being outsourced. There is a 52-percent chance that some displacements will occur. If displacements occur, the expected total number would be 41. Other probabilities of displacement and their expected numbers, given that there is a displacement, are as follows: a 35-percent chance of lateral transfers (19 expected), a 35-percent chance of retirements (7 expected), a 27-percent chance of transfers to lower-graded positions (12 expected), and a 23-percent chance of separations of permanent employees (12 expected). The use of the equations for this example is illustrated further in Appendix C.

Altering the Equations

The prediction equations can be modified to reflect changes in behavior or policy. For example, a general increase in the likelihood of study completion might be modeled by appropriately increasing the intercept in the completion-prediction equation. Alternatively, if the competitiveness of the private market for data processing were to change so that it resembled the private market for social services, this situation might be modeled by changing the data processing coefficient in the study outcome prediction equation to equal the value of the social services coefficient in that equation.

Precision of Predictions

While the variability of these estimates is easily computed for a given stage of the model, the total variability is less easily assessed. In general, prediction of the number of displacements becomes more difficult as the starting point retreats from the likelihood-of-

displacement stage, to study outcome, to study completion, and finally to activity studied. Since a studied commercial activity can fail to have an effect because the study is terminated at any of several stages, start-to-finish predictions are inherently variable. For this reason, predictions of outcomes for a single activity are likely to be too variable for practical use. Nevertheless, predictions summed over groups of at least 20–30 activities to be studied are likely to be reasonably precise, given that the parameters of the model are still applicable. *We therefore recommend that, when using the multistage model, a large set of prediction observations be used, and the resultant predictions summed.*¹²

As with all modeling, predictions based on predictor values that are outside the range of the observations used to build the model are likely to result in less-accurate predictions. The same may also be true for predictions based on combinations of predictor values that are very unlike any combinations found in the original data set. Similarly, if the nature of new studies differs from that of old studies in ways that are not captured by the predictor variables, precision may be degraded. This might be the case if the activities originally studied were chosen on the basis of their being easy studies to complete and the reasons for their completion being easy were not reflected in their size, proportion civilian, function, solicitation type, and service/agency, for example.

Another important consideration is data quality. Chapter Three suggests that there is underreporting and procedural inconsistency in CAMIS data collection. The precision of the predictions is limited by the quality of the data.

Finally, changes in the administration of the A-76 process could be a greater source of variability than variability in the model itself.

¹²Furthermore, in constructing the multistage model, the property of cross-category additivity for types of displacement was traded off for improvements in the precision of the estimates of each type of displacement. By definition, the number of temporary employees separated is equal to total displacements minus the sum of the other four types of displacement (separation of permanent employees, retirements, transfers to lower-graded positions, and lateral transfers). However, because of the trade-offs we made in estimating the models, the differences between predicted total displacements and the other predictions should not be used as a prediction of the number of temporary employees separated.

Refining the Predictions

Chapter Three alluded to the high, but unknown, proportion of all displacements that go unreported. Detailed personnel records, available at the local level, could be analyzed to estimate this proportion, which would greatly improve the precision of predictions.

Linking CAMIS information to civilian personnel data files could potentially serve as a check on the accuracy of personnel information in the CAMIS file. Unfortunately, two obstacles stand in the way of such a linkage. First, civilian personnel transaction files appear to underuse legal authority codes associated with A-76 actions: Actions attributed to an A-76 process in the CAMIS file are often not attributed to an A-76 process in the civilian personnel transaction file, but are instead coded more generally. Second, there are no common data elements that allow a given A-76 action in the CAMIS file to be linked to individuals or transactions in civilian personnel files. Attempts to do so by geographical and temporal similarities can have only limited success. Developing and exploiting such a cross-file linkage would be a worthwhile undertaking in future research.

CONCLUSIONS AND RECOMMENDATIONS

The number of DoD civil service employees—30,100—reported to be affected by outsourcing actions over a recent 16-year period, or even some larger number that might take into account unreported displacements, is modest when compared with the numbers affected by base closures and defense downsizing during the past decade. However, we observed an additional 337,000 remaining in-house civil service positions in DoD commercial activities as of the end of fiscal year 1994, of which well over half have no national defense reason for remaining in-house. Given the potential savings to be realized by outsourcing these positions and a growing awareness of this potential within DoD and the services, the pace and scope of A-76 cost-comparison studies can be expected to increase, perhaps dramatically.

We have developed recommendations to enhance management of the expected increase in outsourcing studies. Most of our recommendations are for adjusting policies and procedures. A final recommendation pertains to using the model we have developed to predict and prepare for the displacements from outsourcing studies.

POLICIES AND PROCEDURES

Findings of our site visits suggest that installations may face conflicts as they strive to improve efficiency and effectiveness while treating civil service employees fairly. In general, CPOs assume the role of protector of the civil servants and place great emphasis on a fairness objective, often at the expense of efficiency. Functional managers and installation commanders are also dedicated to their workforce,

but tend to place greater emphasis on enhancing productivity and efficiency at the installation. This conflict is a central issue for the outsourcing process. Some of our recommendations are likely to improve both efficiency and fairness, but others advocate that DoD consider current trade-offs between them. Below, we discuss these two groups of recommendations separately.

Improving Efficiency and Fairness

In the federal government, the outsourcing process and its aftermath are restricted by myriad rules and regulations that can limit the scope of programs designed to assist displaced employees. In some cases, the barriers result from the laws themselves; in others, the barriers result from the way in which certain rules and regulations are applied by the DoD. The site visits raised several issues about the current mechanisms for assisting displaced workers. These issues include localization of placement efforts, flexibility in organizing work, and development of PWSs and MEOs.

Localization of Placement Efforts. The localization of efforts to address the concerns of displaced workers, at the installation level, provides a perspective that has some benefits. But it also imposes significant costs on the government and its employees, costs that are likely to increase as the level of outsourcing increases—particularly when outsourcing is coupled with downsizing. Our site visits revealed that CPOs are already experiencing difficulties placing employees in vacant positions, and that the CPOs do not always have the resources to address the needs of displaced workers as completely as possible if the placement effort remains localized.

An increase in outsourcing in the context of DoD-wide downsizing will exacerbate the aforementioned problems and pose more of a burden for installation-level CPOs. OSD may want to explore changes at various levels of DoD to the current policies for dealing with employees whose jobs are outsourced. For example, to ease the burden an outsourcing action places on local CPOs and improve responsiveness to the concerns of civil service personnel, OSD may want to advocate the development of expert teams, either within OSD or at the service level, of personnel specialists who could be deployed DoD-wide or service-wide to assist local offices when the installation is involved in a large RIF. Among other things, these

expert teams would work with the local CPOs to provide frequent information briefings to keep civil service employees informed of their rights and the progress of the A-76 competition.

In the context of increasing regionalization of the DoD CPO structure, OSD might work with local CPOs to develop a system that encourages installations to place people locally—to a point—but then to allow them to swap workers with other installations undergoing a RIF, particularly other installations in the same general region. For example, OSD might try to promote more-effective use of the workforce by exploring the possibility of allowing several installations going through a RIF to exchange workers without going through the PPP or RPL. Such flexibility might require legislative changes, and OSD should consider what type of legislative reforms it should promote.¹ Additionally, nonfederal hiring incentives (retraining and relocation reimbursements), currently available only for base closures and realignments, might be usefully extended to cover outsourcing actions.²

Flexibility in Organizing Work. We found evidence that contractors tend to be more likely than in-house organizations to organize work in a way that uses workers more productively and takes advantage of flexibility in managing performance. While civil service regulations may impose greater constraints in these areas than those faced by private-sector managers, we also perceived that in-house organizations tend not to fully use the flexibilities available to them. DoD and the services may want to find ways to promote more-flexible approaches to classification and performance management and to seek relief from regulatory or statutory impediments. Such changes could generate efficiencies that reduce the need for outsourcing.

Development of Performance Work Statements. We found evidence of significant problems in the development of performance work

¹A systematic policy review would be required to determine those types of programs DoD could promote without legislative change and those that would require legislative change. In general, however, civil service rules and regulations give agencies a great deal of flexibility in the geographic aspects of defining competitive areas, suggesting that it is DoD rather than statute or OPM policy that is driving the localization of decisions at the installation level.

²These incentives are provided as a pilot program under Section 348 of the National Defense Authorization Act for FY 1995 (P.L. 103-337).

statements. These problems can, in the short run, work to both the advantage as well as the disadvantage of civil service personnel. In the long run, however, high-quality information will benefit all parties. One way to promote improvement would be to create DoD-, service-, or command-wide A-76 centers that would be responsible for developing PWSs for bundled contracts across installations, for devising standard PWS templates, or for forming a team of PWS experts who could be dispatched to installations undergoing a long-term A-76 study. Since functional expertise is often needed on these teams, such teams might be formed as part of the staffs of functions that oversee a high proportion of commercial activities. These expert teams could go from installation to installation, developing databases of PWS templates in a variety of functional areas that could be used as a basis for PWSs. Under such a system, it would be possible to perfect the PWSs according to lessons learned at many installations. As a worker at Air Force No. 2 stressed, "Why should we re-invent the wheel every time?"

Another reason to promote centralization of PWS development is the fact that local employees in an activity being considered for outsourcing rarely have an incentive to develop a good PWS. This is an additional task thrown upon them—they are given no additional resources to do it—and the result of the task may be the outsourcing of their activity. If outsourcing occurs, local managers expect to lose a great deal of their flexibility. The establishment of a group of individuals at the major command, service, or even DoD level who are specifically tasked to develop PWSs and who have no stake in the outcome of the cost-comparison study would likely improve the quality of the work statements.

Development of Most Efficient Organization Proposals. Similarly, DoD-, service-, or command-wide MEO centers might be formed to help local employees and managers formulate more-competitive MEO bids. Private-sector bidders generally have experience in estimating workloads and costs that is almost entirely lacking among the workforces from which those who prepare MEOs must be drawn. As a result, MEO preparers probably tend to erroneously estimate labor needs. Since there are vested interests among these workers in retaining more rather than fewer jobs in an MEO, they probably tend to overestimate labor.

Trade-Offs Between Efficiency and Fairness

The relative costs and benefits of in-house versus contractor performance must be examined carefully. We note several problems with the current process:

- Some transition costs are not captured.
- The expenses of conducting cost-comparison studies are ignored.
- In-house and contractor wage-setting practices differ.
- Some federal retirement benefits are nonportable.

Transition Costs. Transition costs—including the costs of retained grade and pay and the costs of training workers for new positions—are not captured. In many cases, these costs could be included in cost-comparison calculations as one-time conversion costs, but they are not. Whether or not conversion costs are captured more systematically, the size of the margin (currently 10 percent) required between a winning private-sector bid and the MEO bid, which is intended to account for unitemized conversion costs, should be examined. Also, the government could avoid some of these costs by reducing retained grade and pay benefits or by reclassifying and transferring displaced workers more selectively. However, doing so would clearly be detrimental to worker interests.

Expenses of Cost-Comparison Studies. In a related vein, the considerable expenses that are incurred in conducting cost-comparison studies appear to be ignored in *ex post* evaluations of the benefits of outsourcing. While it is inappropriate to include these costs in either the in-house or the contractor side of a cost-comparison ledger, they should be subtracted from the total savings attributable to outsourcing.

Differences in In-House and Contractor Wage Setting. Next, the way in which wage rates or floors are determined for the in-house bid differ importantly from that for contractor bids. In-house bids must generally be based on higher wage rates than those for competing private-sector contractors. To remedy this situation, OSD may want to promote changes to the wage survey processes that reduce such discrepancies. The effect of this remedy would be to eliminate

an apparent compensation advantage that civil service employees enjoy over comparably employed workers in the private sector; however, the loss of this compensation advantage may be preferable to the loss of jobs through outsourcing.

Nonportability of Federal Retirement Benefits. Nonportability of some federal retirement benefits makes it particularly unappealing for workers with many years of service (but not enough to qualify for immediate annuities) to leave civil service. It may also account for some of the zeal with which supervisors and civilian personnel managers attempt to provide opportunities for continued civil service employment. These worker and management attitudes can inhibit organizational adaptation to changing requirements. Thus, OSD may want to examine the effects of greater portability or other retirement-system changes on personnel outcomes and workforce costs. Greater portability might drive up retirement costs but would reduce worker and management resistance to reductions in the size of the civil service workforce.

PREDICTING DISPLACEMENTS

Current estimates of savings that can be realized from outsourcing of DoD commercial activities often seem to be predicated on the notion that outsourcing decisions can be reached in the near term on all remaining in-house commercial activities. However, given the historical evidence, the A-76 cost-comparison process is not nearly as efficient as this ideal. Without changes in the process, cost comparisons will likely continue to be protracted and subject to noncompletion at high rates.

In this research, we have developed a modeling approach that permits us to project displacements as soon as the input values for predictor variables become known. As a practical matter, these values become accessible to analysts when the services initially update their CAMIS files to reflect approval of a study. DoD may thus take advantage of protracted study lengths to provide its program managers with predictions of outsourcing displacements two to four years before they occur.

METHODOLOGY FOR SITE VISITS

To gather information for the case studies summarized in Chapter Three, we visited one Army and three Air Force installations. We selected cases for study on the basis of the size of the activity studied, functional area, and service, to examine the widest possible variety of cases in which the largest number of civil service employees had been displaced. However, as discussed in Chapter One, our choices were limited to the very few activities—all Air Force or Army—that had been subjected to completed cost-comparison studies during a moratorium on outsourcing extending from 1992 to 1994.

Our research consisted of interviews, focus groups, and document reviews. At each installation, we obtained copies of the contract (which includes the performance work statement [PWS]), the most efficient organization (MEO) statement, and the cost-comparison study document. We typically conducted 1-hour interviews with the following individuals or groups:¹

- Commander or vice commander of the host organization on the installation
- Chief and/or other representatives of the civilian personnel office (CPO)

¹At all except the Army installation, these interviews were conducted on an individual basis. At the Army installation, we interviewed everyone at the same time in a large, 3-hour interview. Also, at the Army installation we did not interview anyone in the command section of the host organization.

- Chief and/or other representatives of the manpower (Air Force) or resource management (Army) office
- Chief and/or other representatives of the contracting office
- Functional manager or managers responsible for the outsourced activities
- Contractor's local manager.

At all installations at which the contractor had taken over control of the function (all installations except Air Force No. 1), we interviewed a quality assurance evaluator (QAE) and customers of the contractor for approximately 30 minutes. At Air Force No. 1, we interviewed representatives of the local union for approximately 30 minutes. At Air Force Nos. 1 and 2, we also conducted 1-hour focus groups with employees who had been or would be displaced by the outsourcing action. At the Army installation and Air Force No. 3, we spoke individually with at least one civilian employee who had worked in the functional area when the activity was being performed in-house.

The installation-level interviews were semi-structured, guided by common written interview protocols. The focus-group interviews were structured and followed a written focus-group protocol.

These installation-level interviews were supplemented by meetings with the manpower or resource management office at the major commands associated with the installations. At these meetings, we were provided with general information on the role of that major command in the A-76 process. Because all the Air Force A-76 actions occurred in a single major command, we visited one Army major command and one Air Force major command.

ESTIMATING THE MULTISTAGE AND NET-EFFECTS MODELS

In this appendix, we detail how the multistage and net-effects models were estimated.

LOGISTIC REGRESSIONS IN THE MULTISTAGE MODEL

We used logistic regressions to estimate the relationship between the predictor variables (size, proportion civilian, solicitation type, date, service/agency, and function) and seven different intermediate binary outcomes described in Stages One (completion/cancellation), Two (outsourcing/in-house) and Three (total displacement, permanent separation, transfer to lower-graded position, lateral transfer, and retirement) of the multistage model. Categorical variables, such as service or function, were dummy-coded. The variable *size* had a positively skewed distribution, which we transformed logarithmically to an approximately normal distribution. To measure the influence of missing values on estimates, we used indicator variables. There was no evidence that missing values occurred in a nonrandom fashion that would have substantial influence on the estimates. For each of the seven equations, we removed predictor variables that did not provide evidence of statistical significance and adjusted the estimate of the intercept appropriately.

Cases in which the dependent variable had the same value for all observations of a given level of an independent (predictor) variable vio-

late the assumptions of logistic regression.¹ A level of a predictor variable that is associated with only one value of the dependent variable may be referred to as an *inestimable* level. For example, if all cases that involve depot maintenance are canceled, then depot maintenance is an inestimable level of the variable *function* for the completion outcome. A given equation may have more than one inestimable level. When an inestimable level was present in an equation, we employed the following alternative procedure:

- All observations associated with an inestimable level are temporarily removed from the data set on which the logistic regression is being performed.
- The logistic regression is then performed on the remaining observations.
- To prevent unrealistically extreme predictions resulting from a few observations, we used a prior probability distribution equivalent to one observation at the mean probability of success for the entire equation.
- To derive the final estimate for inestimable levels, we used the observed rate of success and the prior probability distribution, assuming that the effects of other predictors were the same as they were in the remaining observations.
- We adjusted the intercept to account for the modification in the estimates of inestimable levels.

LINEAR REGRESSIONS IN THE MULTISTAGE MODEL

Using linear regressions, we estimated the relationship between the predictor variables and the five different outcomes that can occur in Stage Four. Categorical variables were dummy-coded. The variable *size* and all dependent variables had positively skewed distributions that were transformed logarithmically to approximately normal distributions. We used the smearing method to correct for bias introduced in the retransformation of prediction equations, and indicator

¹The *level* of an independent variable is a specific value assumed by that variable, e.g. "Army" is a level of the service/agency variable.

variables to measure the influence of missing values on estimates. There was no evidence that missing values occurred in a nonrandom fashion that would have substantially influenced the estimates. For each of the five equations, we removed predictor variables that did not provide evidence of statistical significance and adjusted the estimate of the intercept appropriately.

Since levels of predictor variables with very few observations may result in highly variable estimates that are not likely to be replicable, we estimated these levels with an alternative procedure for *small-sample* levels, used with predictor variables associated with fewer than five observations. A given equation may have more than one small-sample level. The procedure used in such cases is outlined below.

- Small-sample levels for which there was no statistical evidence of an effect different from the mean effect for that predictor variable were assumed to have an effect equal to the mean effect for that predictor variable.
- Small-sample levels for which there was statistical evidence of an effect different from the mean effect for that predictor variable were handled differently. Their estimates were shrunk toward the mean effect for that variable, as follows: The final estimate for that level is a linear combination of the initial estimated effect for the small-sample level and the mean estimated effect. The relative weights for the linear combination are n for the initial small-sample effect and $(5 - n)$ for the mean effect, where n is the number of observations associated with the small-sample level.
- The intercept was adjusted to account for the modification in the estimates of small-sample levels.

This procedure shrank the estimates of small-sample levels toward the mean, thereby stabilizing variable estimates. As an example, if there were only two cases in which manufacturing activities resulted in permanent separations, but there was statistical evidence that these cases reflected a higher mean number of separations than occurred for other functions, the final estimate would be $2/5$ of the initial estimate of the effect of manufacturing plus $3/5$ of the mean effect estimate for all other functions.

ESTIMATION OF THE NET-EFFECTS MODEL

We estimated one equation using total displacements as the dependent variable. Because of the high proportion of zero-displacement outcomes, we transformed the dependent variable into a five-level ordinal variable in the following manner: We assigned the lowest score to outcomes of zero displacement and the four higher scores to the quartile ranks among nonzero observations for the dependent variable. We then estimated this ordinal dependent variable by linear regression similar to that for the estimation of linear regressions in the multistage model. We assessed the coefficients for statistical significance and sign (positive or negative effects); otherwise they were not readily interpretable.

USING EQUATIONS IN THE MULTISTAGE MODEL TO PREDICT OUTCOMES

This appendix provides equations and entry values with which analysts can predict the outcomes of ongoing or future cost-comparison studies. To determine the appropriate entry values, the activities to be studied must be identified and certain of their characteristics must be known. If available, an up-to-date CAMIS database containing records on all approved studies would provide the necessary information.

For each of the equations below, we provide entry values for predictor variables in a series of accompanying tables. To predict outcomes for a given activity, first select the entry value for each of the applicable predictor variables (i.e., select the values that match the characteristics of the activity). Use these values to solve for X in the appropriate linear equation. Then use the resulting value of X to solve for Y in the appropriate logistic equation.

Three variables do not have tabular entry values; their entry values are as follows:

$size$ = number of civilian and military authorizations allocated to the commercial activity at the start of the cost comparison.

$pciv$ = proportion of authorizations that are civilian.

I_{NB} = indicator variable that takes on the value 1 for negotiated bids and 0 for sealed bids.

EQUATION FOR PREDICTING STUDY COMPLETION

The predicted probability of completion for a studied activity is Y_1 . If summed for a number of studied activities, it is the predicted number of those studies that will be completed:

$$Y_1 = \frac{e^{X_1}}{1 + e^{X_1}} \quad (\text{C.1})$$

$$X_1 = -2.3209 - 0.2008 \ln(\text{size}) + \text{func}_1 + \text{serv}_1 + \text{date}_1 \quad (\text{C.2})$$

Table C.1

Values for the Function Variable in Eq. C.2

Function	func_1
Social services (Code G—community services)	1.8811
Social services (Code U—education and training)	-2.1476
Health services	-1.7297
Equipment maintenance and repair	1.0080
Depot maintenance and repair	-0.0726
R&D support	1.1734
Installation services	0.1736
Multifunction	-0.4629
Data processing	-0.0843
Manufacturing	-2.1310
Real property repair and maintenance	-0.5654
Other nonmanufacturing	0

Table C.2

Values for the Service/Agency Variable in Eq. C.2

Service/Agency	serv_1
Defense Commissary Agency	1.4057
Defense Mapping Agency	-0.7997
Air Force	2.5925
Marines	0.3287
Navy	1.8660
Defense Logistics Agency	0.1450
Army	0

Table C.3
Values for the Starting Date Variable
in Eq. C.2

Starting Date	$date_1$
Historical average	1.5172
Before 1981	3.0767
1981-1985	1.2546
1985-1988	0
After 1988	0.0770

EQUATION FOR PREDICTING THE STUDY OUTCOME

The predicted probability of outsourcing for an activity with a completed study is Y_2 . The product of Y_1 and Y_2 is the predicted probability of outsourcing for a studied activity. If these products are summed for a number of studied activities, the result is the predicted number of those studies that will be outsourced:

$$Y_2 = \frac{e^{X_2}}{1 + e^{X_2}} \quad (C.3)$$

$$X_2 = -0.4850 + 0.3193 \ln(size) - 0.7622(pciv) \\ + func_2 + serv_2 - 0.3192I_{NB} \quad (C.4)$$

Table C.4
Values for the Function Variable in Eq. C.4

Function	$func_2$
Social services	1.8311
Health services	-1.5274
Equipment maintenance and repair	0.3792
Depot maintenance and repair	-2.6722
R&D support	0.4909
Installation services	0.2243
Multifunction	-0.4746
Data processing	0.2317
Manufacturing	0.8029
Real property repair and maintenance	0.3550
Other nonmanufacturing	0

Table C.5
Values for the Service/Agency Variable in Eq. C.4

Service/Agency	<i>serv</i> ₂
Defense Commissary Agency	-0.1833
Defense Mapping Agency	0.8881
Air Force	0.5197
Marines	-0.1027
Navy	-0.0554
Defense Logistics Agency	-2.2203
Army	0

EQUATIONS FOR PREDICTING THE PRESENCE OF DISPLACEMENT

The predicted probabilities of the presence of any displacements, separations of permanent employees, retirements, transfers to lower-graded positions, and lateral transfers are $Y_{3,1}$ through $Y_{3,5}$, respectively, for an activity that has been outsourced. The product of Y_1 , Y_2 , and the appropriate $Y_{3,i}$ is the predicted probability of some displacement of the specified type for a studied activity. If these products are summed for a number of studied activities, the result is the predicted number of studies that will have the specified displacement:

$$Y_{3,i} = \frac{e^{X_{3,i}}}{1 + e^{X_{3,i}}} \text{ for } i = 1, 2, \dots, 5 \quad (\text{C.5})$$

Total Displacements:

$$X_{3,1} = 5.8897 + func_{3,1} + serv_{3,1} + date_{3,1} + 0.5451I_{NB} \quad (\text{C.6})$$

Separations of Permanent Employees:

$$X_{3,2} = -2.2504 + 0.5880 \ln(size) + 0.8831(pciv) + func_{3,2} + serv_{3,2} + date_{3,2} \quad (\text{C.7})$$

Retirements:

$$X_{3,3} = -2.5496 + 0.5416 \ln(\text{size}) + 1.3575(\text{pciv}) + \text{func}_{3,3} \\ + \text{serv}_{3,3} + \text{date}_{3,3} \quad (\text{C.8})$$

Transfers to Lower-Graded Positions:

$$X_{3,4} = -1.5739 + 0.5213 \ln(\text{size}) + \text{func}_{3,4} \\ + \text{serv}_{3,4} - 0.6001I_{NB} \quad (\text{C.9})$$

Lateral Transfers:

$$X_{3,5} = 3.0440 + 0.2624 \ln(\text{size}) + \text{func}_{3,5} + \text{serv}_{3,5} \\ + \text{date}_{3,5} + 0.4067I_{NB} \quad (\text{C.10})$$

Table C.6**Values for the Function Variable in Eqs. C.6–C.10**

Function	$\text{func}_{3,1}$	$\text{func}_{3,2}$	$\text{func}_{3,3}$	$\text{func}_{3,4}$	$\text{func}_{3,5}$
Social services	1.9734	1.1283	-0.1820	0.1155	0.9673
Health services	0.8557	0.0632	1.4678	0.4998	-0.4736
Equipment maintenance and repair	0.3639	0.3078	0.4455	1.2212	-0.3580
Depot maintenance and repair	0.5525	0.2945	0.2771	0.2483	-0.0063
R&D support	-0.1068	-1.4300	-0.4519	0.8748	-1.1667
Installation services	0.2655	0.3626	0.4824	-0.0054	-0.4394
Multifunction	0.8944	0.2642	1.0237	0.4556	0.1215
Data processing	0.7158	-1.5707	-2.0005	0.0958	-0.1168
Manufacturing	0.1426	2.4627	2.1145	-0.4108	0.7701
Real property repair and maintenance	0.1824	0.5086	0.6469	0.5123	-0.1040
Other nonmanufacturing	0	0	0	0	0

Table C.7

Values for the Service/Agency Variable in Eqs. C.6–C.10

Service/Agency	$serv_{3,1}$	$serv_{3,2}$	$serv_{3,3}$	$serv_{3,4}$	$serv_{3,5}$
Defense Commissary Agency	-1.4873	-0.6231	-1.4489	0.6776	-1.6852
Defense Mapping Agency	-4.2449	-1.3834	0.4944	-1.6027	-1.8882
Air Force	-2.6358	-0.6409	-0.5884	-0.5356	-1.8650
Marines	-1.8947	-0.3165	0.0828	0.3594	-1.5399
Navy	-6.4851	-0.9463	-1.6948	-2.5033	-4.0788
Defense Logistics Agency	-4.2449	-1.3834	0.4944	0.6911	-1.8882
Army	0	0	0	0	0

Table C.8

Values for the Starting Date Variable in Eqs. C.6–C.10

Starting Date	$date_{3,1}$	$date_{3,2}$	$date_{3,3}$	$date_{3,5}$
Historical average	-0.4452	-0.9048	-0.1210	-0.1720
Before 1981	-1.2273	-0.9078	-0.1344	-0.5464
1981–1985	0.5127	-1.1837	-0.0537	0.3066
1985–1988	0	0	0	0
After 1988	-3.0581	-1.0602	-1.5535	-1.4654

EQUATIONS FOR PREDICTING THE MAGNITUDE OF DISPLACEMENTS

The expected numbers of total displacements, separations of permanent employees, retirements, transfers to lower-graded position, and lateral transfers are $Y_{4,1}$ through $Y_{4,5}$, respectively, for a study that results in at least some of the given displacement. The product of Y_1 , Y_2 , $Y_{3,i}$, and $Y_{4,i}$ is the predicted number of displacements of the specified type for a studied activity. If these products are summed for a number of studied activities, the result is the predicted number of displacements the set of studies will produce.

Total Displacements:

$$Y_{4.1} = 0.4278 \left(size^{0.8661} \right) \left(4.5159^{pciv} \right) \left(func_{4.1} \right) \left(serv_{4.1} \right) \quad (C.11)$$

Separations of Permanent Employees:

$$Y_{4.2} = 0.3199 \left(size^{0.6226} \right) \left(2.0172^{pciv} \right) \left(func_{4.2} \right) \left(serv_{4.2} \right) \quad (C.12)$$

Retirements:

$$Y_{4.3} = 0.1788 \left(size^{0.5685} \right) \left(3.8351^{pciv} \right) \left(func_{4.3} \right) \quad (C.13)$$

Transfers to Lower-Graded Positions:

$$Y_{4.4} = 0.3565 \left(size^{0.6531} \right) \left(2.4900^{pciv} \right) \left(func_{4.4} \right) \left(soli_{4.4} \right) \quad (C.14)$$

Lateral Transfers:

$$Y_{4.5} = 0.4832 \left(size^{0.6880} \right) \left(3.8950^{pciv} \right) \left(func_{4.5} \right) \left(serv_{4.5} \right) \left(soli_{4.5} \right) \quad (C.15)$$

Table C.9
Values for the Function Variable in Eqs. C.11–C.15

Function	$func_{4.1}$	$func_{4.2}$	$func_{4.3}$	$func_{4.4}$	$func_{4.5}$
Social services	0.9122	1.1091	0.7819	0.8062	0.7044
Health services	0.5812	1.3566	1.1144	1.1372	0.6520
Equipment maintenance and repair	1.1805	2.2807	1.2732	1.1184	0.7538
Depot maintenance and repair	1.0533	1.3566	1.1144	1.1372	0.8700
R&D support	1.0140	1.3566	1.1144	1.1372	0.8700
Installation services	1.0319	1.4617	1.2198	1.0403	0.8879
Multifunction	1.2371	1.5417	1.5157	1.5353	0.9515
Data processing	0.9899	1.3566	1.1144	0.3772	1.1987
Manufacturing	1.1419	2.5465	1.1144	1.1372	0.8700
Real property repair and maintenance	1.1535	1.1570	0.8213	1.6026	0.8406
Other nonmanufacturing	1	1	1	1	1

Table C.10

Values for the Service/Agency Variable in Eqs. C.11–C.15

Service/Agency	<i>serv</i> _{4,1}	<i>serv</i> _{4,2}	<i>serv</i> _{4,5}
Defense Commissary Agency	0.8278	0.4026	0.5268
Defense Mapping Agency	0.7285	1.0353	0.8245
Air Force	0.6903	1.0353	0.7937
Marines	0.7462	1.0353	0.6966
Navy	0.6257	1.0353	0.7661
Defense Logistics Agency	0.8537	1.0353	0.8245
Army	1	1.0353	1

Table C.11

Values for the Solicitation Type Variable
in Eqs. C.11–C.15

Solicitation Type	<i>sol</i> _{4,4}	<i>sol</i> _{4,5}
Negotiated bid	1.2830	1.1706
Sealed bid	1	1

EQUATIONS FOR THE EXAMPLE IN CHAPTER FOUR

Chapter Four gives an example of a hypothetical Air Force installation services activity with 60 authorizations, of which 90 percent are civilian, handled through a sealed bid. The historical average will be used for the date. Below we calculate the percentage for the multi-stage process and the various resulting displacements.

Using Eqs. C.1 and C.2 and Tables C.1 through C.3, we find that

$$\begin{aligned}
 X_1 &= -2.3209 - 0.2008 \ln(60) + 0.1736 + 2.5925 \\
 &\quad + 1.5172 = 1.140
 \end{aligned}
 \tag{C.16}$$

and

$$Y_1 = \frac{e^{1.14}}{1 + e^{1.14}} = 0.76
 \tag{C.17}$$

Thus, the study has a 76-percent chance of being completed. Using Eqs. C.3 and C.4 and Tables C.4 and C.5, we find that

$$X_2 = -0.4850 + 0.3193 \ln(60) - 0.7622(.90) + 0.2243 \\ + 0.5197 - 0.3192(0) = 0.8803 \quad (\text{C.18})$$

$$Y_2 = \frac{e^{0.8803}}{1 + e^{0.8803}} = .707 \quad (\text{C.19})$$

$$Y_1 * Y_2 = 0.76 * 0.707 = .54 \quad (\text{C.20})$$

Thus, the study has a 70.7-percent chance of being outsourced if it is completed, resulting in a 54-percent chance of outsourcing of the studied activity. Using Eq. C.6 and Tables C.6 through C.8, we find that

$$X_{3.1} = 5.8897 + 0.2655 - 2.6358 - 0.4452 + 0.5451(0) = 3.0742 \quad (\text{C.21})$$

$$Y_3 = \frac{e^{3.0742}}{1 + e^{3.0742}} = .959 \quad (\text{C.22})$$

$$Y_1 * Y_2 * Y_3 = 0.76 * 0.707 * 0.959 = .52 \quad (\text{C.23})$$

Thus, the activity has a 95.9-percent chance of causing displacements if it is outsourced, resulting in a 52-percent chance of some displacements from the studied activity. Using Eq. C.11 and Tables C.9 through C.11, we find that

$$Y_{4.1} = 0.4278(60^{0.8661})(4.5159^{0.9})(1.0319)(0.6903) = 41.04 \quad (\text{C.24})$$

Thus, if the activity does cause displacements, we would expect 41 displacements to occur.

CHARACTERISTICS OF PERSONNEL DISPLACED THROUGH A-76 ACTIONS

To gather additional information about the types of employees displaced as a result of A-76 actions, we conducted a preliminary analysis of Civilian Personnel Transaction files from 1982 through 1994. We examined all 1,464 separations of permanent employees that had legal authority codes attributing the separation to A-76 actions.¹ Because of their underuse, these legal authority codes represent only a portion (about 54 percent) of all separations attributed to A-76 actions in the CAMIS file during this period. It is not known whether this portion is fully representative of all permanent employees separated under the A-76 procedure.

With these caveats in mind, we present preliminary findings based on A-76-related separation transactions. To compare displaced employees with the general population, we used civilian personnel inventory files for the years 1982–1994, weighted by the number of A-76-related separations of permanent employees that occurred in a given year.

When viewed using professional, administrative, technical, clerical, and other (PATCO) categories, separated employees are primarily blue collar (71 percent) and clerical (16 percent), as can be seen in Table D.1. Since blue-collar workers constituted only 30 percent of the permanent workforce over that period, they were much more likely to be separated than workers in other PATCO classifications. This blue-collar and clerical emphasis is also reflected in the fact that

¹The A-76-related legal authority codes are PNR, VMJ, RPR, and RTR.

Table D.1**Distributions of A-76-Related Separations of Permanent Employees and DoD Permanent Employee Inventories, by PATCO Classification (%)**

PATCO Classification	A-76-Related Separations of Permanent Employees	DoD Permanent Employee Inventory
Blue-collar	71	30
Professional	1	15
Administrative	5	22
Technical	5	13
Clerical	16	19
Other white collar	1	1

SOURCE: Civilian Personnel Transaction and Inventory files.

only 6 percent of all separations involved employees of level GS-9 or higher, even though these grades represented 38 percent of the permanent workforce over this period, as is evident in Table D.2.

Employees with more than 10 years of service constituted 55 percent of all permanent separations, as compared with 60 percent of the total permanent workforce. Women (19 percent of separations, 35 percent of permanent employees) were less likely to be affected than

Table D.2**Distributions of A-76-Related Separations of Permanent Employees and DoD Permanent Employee Inventories, by Grade (%)**

Grade	A-76-Related Separations of Permanent Employees	DoD Permanent Employee Inventory
GS 9+	6	38
GS 5-8	10	22
GS 1-4	13	9
WG 10+/WL/WS	29	15
WG 6-9	22	9
WG 1-5	20	4
Other	<1	3

SOURCE: Civilian Personnel Transaction and Inventory files.

men; non-Hispanic blacks (19 percent of separations, 13 percent of permanent employees) were more likely to be affected than other racial groups. These last two patterns might be attributable to differences in race and gender across PATCO categories, given that blue-collar employees are disproportionately displaced by A-76 studies.

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